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DIGITALIS—IS IT A CARDIAC SEDATIVE, OR CARDIAC STIMULANT?

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Digitalis has been prominently before the profession since 1775, at which time it was introduced by Dr. Withering, in a monograph treating of its value in dropsy. It has held a place in the British Pharmacy since 1721. It has, however, been believed to be by most early writers a cardiac sedative, and is still so considered by some writers, and many, or most of the profession, at the present day. To give a comparative statement of authorities as to its physiological effects and therapeutic value and applications, are the chief objects of this paper. We shall also add some of our own experience with the agent, in the treatment of diseases to which it seemed applicable.

Dr. Eberle, (*Therapeutics*, 1842) says: "I am entirely persuaded that its operation is immediately sedative; for it is certain that its stimulant effects, if it has any at all, are extremely feeble, and by no means proportionate to its ultimate sedative influence." "The fact of the sedative influence of digitalis (Ferriar) is so decisive

that I do not hesitate to employ this term, notwithstanding the jargon with which the public has of late years been abused on the subject of sedatives." In the time when Ferriar wrote, there was great discord as to the properties of digitalis, as it was variously claimed to be a diuretic, a stimulant, or a sedative, while some claimed that it had "no properties at all."

Drake, Fowler, Beddoes, Mossman, Stefford, Magennis (loc cit), and others, extolled it as a remedy *par excellence* in pulmonary phthisis. This we now know to be untenable. All these writers believed in its cardiac sedative power.

Drs. Hill and Cox recommended it in mania, on account of its sedative effects.

Dr. Baildon (*Edinburg Med. Jour.*, vol. iii.) seems to have been the first to notice the variation of the pulse with different postures of the body. Thus, while standing, the pulse run at 110; while sitting, 70; while lying down, at 40. This effect was in his own person, but also observed to be the case with other individuals. This difference, it was thought by him and others, accounted for the difference of opinion in different observers and experimenters, and especially for that of Saunders, who looked upon the agent as a cardiac stimulant, prior to 1830.

Dr. Geo. B. Wood (*Therapeutics*) believes the agent to be a local excitant, and that any temporary increase of the pulse is caused by sympathetic action from the local effects of the drug on the stomach, which is sometimes inflamed by too free use of it; but that its effects on the general system is that of a sedative to the nervous centres and to the circulation, the latter being under the control of the former. "The evidence (loc cit) of its primary influence upon the nervous centres, and through them on the heart, is afforded by the fact already stated, that if the par vagum be divided on both sides, it (digitalis) ceases to reduce the heart's action, and in moderate doses produces no effect at all."

He further states that with which nearly every writer agrees, viz: That it diminishes the frequency of the pulse. But contrary to the careful observation of others, who have conducted thorough physiological experiments with it, he denies that it increases the volume of the pulse or its tension. "On the contrary," he states, "the resistance under the fingers is generally, if not invariably,

diminished in the normal state of the system; and if the influence of the medicine is increased, it may become extremely feeble."

Wood, in referring to the experiments of Traube, of Berlin, with digitalis, in which the pneumogastrics on both sides were divided, and in consequence of which the drug seemed to lose its effects over cardiac action, concludes from this that the influence it exerts is wholly through these nerves, seeming to forget what influence the cardiac ganglia of the sympathetic system has over the movements of the heart. Of this latter point we shall have more to say further on. The remarkable depressing effect which digitalis has over the sexual organs, Wood also refers to its (*London Medical Times and Gazette*, April, 1855,) sedative influence over the organic nerves. "The appearances after death (from digitalis, loc cit) are marks of inflammation in the stomach and bowels, dark and coagulable blood, and a *loss of contractibility in the heart.* (Italics mine.)

This is directly contrary to the carefully-performed experiments of J. Milner Fothergill (Monograph on Digitalis, its Mode of Action and Uses—Hasting's prize essay for 1870), at least as far as the left side of the heart was concerned; for in animals poisoned by it, the left side of the heart was always found empty, and in a state of tonic contraction.

We shall have occasion to refer to these experiments further on.

Waring also adds his view of the sedative action of digitalis, also referring, as do all others, to its cumulative action in some cases, and to its diuretic powers.

Dr. Garrod thinks it a much better diuretic where a deficiency of urinary secretion depends on cardiac disease. This is probably true, as we shall soon try to explain. Waring * also states that if its sedative or diuretic effects are observed, the patient is free from danger of its cumulative power, in which opinion Dr. Munk (Guy's Hospital Reports, 1844) concurs.

Notwithstanding the sedative action so strongly set forth by Waring (loc cit), he states as his fifth proposition that "it is chiefly applicable to diseases of an asthenic character, and in persons of shattered and debilitated constitutions." This to me seems strangely inconsistent; for patients who are "asthenic," and have shattered and debilitated constitutions, are not those to whom I would feel

* Therapeutics, Second London Edition, 1866.

like administering powerful sedatives, but rather the reverse, unless for some special systemic conditions.

To add to this strange inconsistency, we will quote his seventh proposition, viz.: "In old persons, it is necessary carefully to watch the action of digitalis. It has been observed by Schonlein to produce, in some instances, not only an *alarming weakness, but a positive wasting and maramus,* probably by acting on the nervous system and organs of digestion." Still he has just said it is best adapted to patients that are asthenic, and whose constitutions were in a shattered and debilitated condition. Certainly to make out both of the above propositions must require a mind able to twist and worm around direct contradictions that surpasses that of most men. We think that we shall be able to prove that it is best adapted to those cases where the central organ of circulation is affected with a disease that has weakened its action, and especially where that disease affects mostly the left side of the heart, and shall do so partly from those very authorities that hold it to be such a powerful cardiac sedative, either directly or through the nervous centres. For instance, Dr. Withering (1775), as quoted by Waring, observes: "That it seldom succeeds (in dropsy) in persons of great natural strength or plethoric habit, or in those with a tight and cordy pulse. If the belly in ascites be tense, hard, and circumscribed, or the limbs in anasarca solid and resisting, we have but little hope. On the contrary, *if the pulse is feeble and intermitting* [italics mine], the countenance pale, the lips vivid, the skin cold, the swollen belly soft and fluctuating, the anasarcous limbs pitting under pressure of the finger, we may expect the diuretic effects to follow in a kindly manner." To which Waring adds in comment: "Experience has fully proved the general justness of Withering's remarks." More of these citations hereafter.

Let us now turn to the investigations of J. Milner Fothergill, who, I think, has physiologically demonstrated, and by actual practical experience with the afflicted, proven that it is not a cardiac sedative, but a cardiac tonic of no mean consideration, and that its value in heart diseases, where that organ is weak and debilitated, or doing overwork from some structural change or circulatory interference, is inestimable. The quotations taken from this author will be found in a very able prize essay writen by him, viz: Hasting's Prize Essay for 1870:

"Snails, when touched with the tincture or strong infusion, took a contractile spasm, threw off a coating of mucus, and passed on apparently unaffected." Earth-worms and wasps were not affected by it.

Fishes—"minnows"—that were poisoned with digitalis, in dying were "drawn to one side." "After death, the ventricle was found firmly contracted and glistening like a speck of gristle; and, on being examined by a microscope, no cavity was visible. The auricle was distended, and vainly tried to drive any blood into the tightly contracted ventricle, the blood merely regurgitating into the venous sinus behind, and then flowing back again from the venous distension, relieving itself on the auricle in diastole." When the venous sinus was pricked, so as to permit the escape of the blood contained in the auricle, it also contracted firmly, so that under the microscope no cavity was discernible.

Two sparrows were poisoned by the drug, and "on opening them immediately after death, the *left* ventricle in each was found firmly contracted; the lungs so congested as almost to be hepatized; the *right* ventricle full of blood. It was evident that the condition of the lungs and right ventricle was due to inability to drive the blood into the contracted left ventricle. The gorged condition of the lungs accounted for the gasping respiration observed."

Experiments on mammels by Hanfield Jones and Fuller, proved that a similar condition of the heart attained after death from digitalis (loc cit).

In Fothergill's experiments on frogs, the left ventricle was uniformly found to be firmly contracted, with the left auricle and right ventricle distended, and lungs greatly congested, and his experiments confirmed those of many other able physiologists, as Dybkowsky, Pellikan, Hilton Fagge and Stevenson, of England.

All these experiments being performed with the heart in plain view, it was noticed that the number of contractions were first increased and then became slower, the dilatation or diastole of the left ventricle becoming less and less perfect, until it ceased in a firm and permanent contraction—systole. Other drugs, as belladonna, caffiene, strychnine and aconite, were experimented with. Under belladonna, the contraction of the left ventricle was quite but less distinct than under digitalis; caffiene still less so; while strychnine

produced no perceptible effect on the heart; while with aconite the heart in death was arrested in diastole. This latter fact shows plainly the directly opposite effects on the heart of digitalis and aconite, and leads us unavoidably to inquire whether the one will or will not antidote the other in cases of poisonings.

On this point, Fothergill's experiments go to demonstrate (loc cit, p. 6) that while digitalis seems completely to counteract poisoning by aconite, that aconite has not such complete control over poisoning by digitalis, though it "certainly had an influence," but did not ultimately prevent the permanent contraction of the left ventricle, which causes the fatal result under poisonous doses of digitalis. I can scarcely do better than to give his own words with reference to the counteracting influence of digitalis over aconite. The reader will remember that these experiments were performed with the heart of the frog exposed to plain view. He says: "On the contrary, the administration of digitalis was followed by the most marked results when aconite had been given, and the ventricle had become gradually more and more distended, and its contractions more and more imperfect, each contraction merely expelling a small quantity of blood off the top of the distended ventricle, the contractions becoming slower and slower, and less and less perfect, until a condition of advanced dilatation had been artificially produced; and even when the heart seemed to have given up all action, and remained in diastole, distended with blood and inert, ... the first effect (of digitalis) was to produce an imperfect contraction at long intervals; then the intervals become shorter and the contractions more complete, some irregularity, both as to time and amount of contraction, being observed. Slowly and gradually, however, the distended ventricle recovered itself under the action of digitalis, the contractions being more rythmical and perfect, the distension less and less pronounced, until a return to normal contraction and distension was brought about."

Here, then, we have an antidote for aconite poisoning, which will render us valuable aid in accidents of this character. But care must be taken not to be too lavish in the use of the antidote, else we may poison the patient with it and cause his death with a contracted left ventricle, instead of permitting such an unhappy result by dilatation, under the poisonous effects of aconite. These

experiments with digitalis were also confirmed by Brunton and Gamgee, both eminent observers. They also detected "a temporary murmur" (loc cit, p. 7), which was probably caused by imperfect closure of the mitral valve, through the imperfect action of the musculi papellares." The normal action of the heart is controlled by the pneumogastric nerve (from the organic system), and the cardiac ganglia of the sympathetic system. These, by nerve filaments, communicate with each other. The function of the pneumogastric, with reference to that portion which is distributed to the heart, seems to be to prevent too frequent or too rapid action and too great distension, and only admits the systolic action when the ventricle becomes sufficiently distended by blood being poured into it sufficiently to stimulate the heart to contraction. The cardiac ganglia of the sympathetic, on the other hand, tend to increase the number of contractions. When the pneumogastrics are cut on both sides, the heart beats more rapidly than under the normal conditions of these nerves. The heart, then, seems to be kept in normal action between these two balancing nerve powers. Digitalis evidently produces its influence over the heart secondarily, or through its action on the nerve centres controlling its action.

When the system is under the influence of digitalis, and the pneumogastrics are severed, the number of contractions are increased, but not to the same extent as when not influenced by the drug. It does not, therefore, act wholly and only on the vagus, as Traube and others have supposed. "There is no apparent connection between the giving of digitalis and section of the vagi, except an increase in arterial tension" (loc cit). Traube had supposed that the effect of the drug was produced by partially or completely paralyzing the vagi. But Hanfield Jones, Fuller, Neimeyer, Dybkowsky and Pellikan believe its effects to be exerted through stimulation of the cardiac ganglia, and that this stimulant effect manifests itself through increased muscular action in the heart, which is under their control. With this view Fothergill also sides, and says: "The action of the stimulated cardiac ganglia (under digitalis) is too much for the action of the vagus." Again, "The results, too, of the administration of digitalis after aconite poisoning had been established, would necessitate the theory of aconite acting as a stimulus to the fibres of the pneumogastric, if

Traube's theory of the action of digitalis were true—a conclusion which is not warranted by what we know of aconite."

The action of this agent on the capillaries and arterioles is to produce an increase of their calibre, which effect still further refutes Traube's theory, as these vessels do not contract under an agent which produces a depressing effect, but dilates under such depression. This still further, also, proves that aconite depresses by nerve-sedative power, from the fact that dilatation of these vessels is very noticeable under its influence. This effect of aconite is still further confirmed by Dr. Brunton, London, in a paper recently read before the Medical Society of London, (*Medical and Surgical Reporter*, Aug. 8, 1874) in which he commends it as our best antiphlogistic, short of venesection, and where control of the circulation is demanded without blood-letting being indicated, as is often the case in inflammatory diseases.

So much, then, for the physiological effects of digitalis upon the animal economy. The question next arises: Will these effects be proven by clinical experience? And to this we will next turn our attention; for this proof, if we can attain it, will confirm us in the views we have set forth, and place the drug in an entirely different light from that in which it has stood before the medical profession for the last century or more, and will give it a new and increased value as a therapeutic agent, with which we may be able more successfully to combat a class of diseases that have been, and still are, the opprobium of the profession.

As we stated some pages back, we will prove, to some extent, by those who look upon this agent as a cardiac and nerve sedative, that it is not a sedative, but a cardiac stimulant and tonic, and that its value as a diuretic is based really upon the toning influence it has over the circulation, rather than that it has any specific effect as such, and we think we will, too, decidedly establish these facts by later authorities.

The belief that digitalis was a cardiac sedative, grew out of a mistaken pathology. In former times, it was believed that irregular actions and palpitations were due to or caused by "over-actions of the heart," whereas we now know that they arise from a condition directly the reverse of that, and grow really out of cardiac deficiency, and that we are not now prepared to admit too great

action of this organ resulting from disease of its own structure. What, you may ask, is the strong pulse of the hypertrophied heart but over-action? It is but a compensating growth to meet or overcome some obstacle, or to compensate for loss of power from dilatation of the ventricle. Forthergill says: "We can no more imagine a heart undergoing spontaneous, uncalled-for hypertrophy, than we can fancy a similar action going on in the bladder or bowel," or in any of the muscles of the body. Irregularity and palpitation are only evidences that the organ is being unduly taxed, and that whether hypertrophy exists or not—for if the two co-exist, it is evidence that the hypertrophy has not become great enough to meet the full demands of tension made on the heart by the amount of blood that passes through it. In these conditions, digitalis gives a slower and more regular action by giving tone to the weakened organ, and causing an approximation to the natural strength.

In this state of the heart, the same authority says: "Under digitalis, the pulse becomes steadier, firmer and less compressible; the excited stroke of palpitation is steadied into the normal, quiet, effective contraction; the system is relieved; dyspnœa, the external evidence of pulmonary congestion, is abated; the *deficient secretion of urine*, (Italics mine) which tells us that the pressure on the glomeruli of the malpighian bodies is lessened, is improved, and free secretion takes place; dropsy is thus often relieved."

In this we see a plain hint of the manner by which it brings about its diuretic power. It is observed that he also states that the pulse is firmer and less compressible under the influence of digitalis, which statement is directly opposite to that of Wood, (*Therapeutics*) viz: That he had never noticed that it increased the force or tension of the pulse, which latter, also, accords with nearly all the statements of the old and some of the new writers on this subject. Fothergill adds to the above quotation the following: "The general condition of cyanosis is abated; there is evidence of a better circulation throughout the system generally Frequently the gradually widening circle of troubles which are involving the patient's existence, diminishes after an improvement is inaugurated in the circulation." All this he attributes to "the administration of a drug whose action is unquestionably to produce better, more com-

plete ventricular action; and in that, and that only, I believe the magic lies" (loc cit).

In those cases, then, in which the heart is weak, attended by an ill feeling in that region, with anxiety, breathing more or less difficult and irregular, and readily increased by physical exertion or mental excitement, accompanied with palpitation or irregularity of the pulse, skin more or less cyanosed, we may expect beyond a reasonable doubt that digitalis will prove very greatly beneficial.

Drs. Munk, Hope, R. B. Todd, Boillard, Wood, and a host of old writers, speak in warning terms of its use in the above class of cases; while Hanfield Jones, Fuller, Sutton, Gull, Wilks, Sidney Ringer, Fothergill, Gascoigne, (*Brit. Med. Jour.*, Aug., 1868,) Edward Mackey, (*Brit. Med. Jour.*, May, 1868,) and many others of equal authority, speak of it in high terms as a heart tonic or stimulant; and commend it for all diseases affecting that organ, where it has its origin in debility of its muscular fibre.

Dr. Darwell, who believed in its sedative action, nevertheless commends it, with iron, in dropsy, following scarlet and other debilitating fevers. Why thus commend it if it is a cardiaac sedative in this class of cases?—for certainly the heart partakes very largely of the general debility of the system. Dr. Holland, of the same belief, strongly commends it in similar conditions. Wood, also, speaks in favorable terms of it in dilatation of the heart, associated with anemia (certainly a condition in which the heart is much weaker than normal), where there is excessive action, and in dropsies depending on deficient cardiac power, he commends it as a diuretic; apparently overlooking the fact that its diuretic influence is attained through the influence which digitalis has in toning the circulation, or he perhaps taking the opposite view. In any light, the above clinical facts given by these and many other men, do not correspond in result with their theory of the action of the drug, *i. e.*, as a sedative. If it is a sedative as powerful as is claimed by some, why did it not retain its reputation in inflammatory diseases, which we know it has completely lost, while its opposite, aconite, is fast gaining ground as a valuable and powerful means of combatting inflammatory action, as in acute pneumonia, pericarditis, etc., as testified to by Brunton, and others, after long experience with it at the bed-side?

Dr. E. Mackey (Prof. Materia Medica Queen's College), in reply to the question, May we expect digitalis to strengthen and make regular a feebly-beating heart, or must we dread its depressing pulsation to the verge of extinction?—says: "We may expect the former in a large number of cases."—*Compend. Med. Science* for July, 1868.

Dr. Gull clinically satisfied himself clearly "that digitalis was capable of diminishing the frequency of the heart's heat, and increasing the power of the heart's impulse, and is especially useful in cases of disease of the left side, in which the action is very rapid and feeble," (loc cit.)

Dr. Wilks remarks of a case of dilated, enfeebled heart: "This was just one of those cases where digitalis might be expected to do good," (loc cit.)

Dr. Fuller states that "the cases of heart disease most benefited by digitalis have been those in which the heart has been weak and dilated, pulse feeble and irregular."

Professor Warren Stone says: "Digitalis is a distinct and strong stimulant to the muscles of the heart."—*New Orleans Journal of Medicine.*

Dr. Gascoigne speaks of it as being efficient by its "tonic action on the heart."—*British Medical Journal,* August, 1868.

Dr. Wiltshire speaks of it as an agent that increases the force of ventricular contraction, especially the left, and as giving force and volume to the pulse, while it diminishes the frequency.—*Compend. Med. Science.*

Dr. B. D. Taylor, of Bellevue, New York, (*N. Y. Med. Jour.*, November, 1870) says: "The tonic action of the drug (digitalis) is well known, but the present case shows its effect in restoring power and irregularity almost instantaneous to a feeble heart.

Dr. Bohm, from repeated experiments, concludes that it strengthens the contractions of the heart.

M. Gourvat concludes that the involuntary muscular tissue of the heart is strengthened by it. The beats of the heart are "rendered stronger, slower and more regular by moderate doses."—*Med. and Surg. Reporter,* 1872.

Dr. Pepper says: "In cases that are suitable, the free, fearless and continued use of this drug will relieve the most alarming

symptoms of failing circulation, prolong life sometimes for years, and afford incalculable comfort."—*Med. and Surg. Reporter*, vol. xxix., p. 400.

To the above, quotations from Grimshaw, Little, Ainstie, and others, could be given to add weight, but we presume enough testimony has been given to satisfy most readers on this point. Dr. Grimshaw, considering it one of our best heart tonics, as did also Dr. Little, both used it in low typhus, strictly with a view to this effect, and with happy results. The former used the infusion, so that its effects cannot in his cases be referred to the alcohol contained, as in the tincture.

Others in this and other countries have used it with more than ordinary success in delirium tremens, and in large doses (ʒss to ʒi). In this class of cases not only the voluntary, but the involuntary muscles have always suffered from long over-stimulation, and are, therefore, weak; and, by most of those who have thus used it, have done so with a direct view to its tonic and stimulant effects on the heart. Dr. Jones, of Jersey, was, I believe, the first to bring this practice to the notice of the profession.

Numerous accounts of its value in this disease will be found in the *Compend. of Med. Science* and *American Jour. Med. Sciences*, to which the reader is respectfully referred.

My own experience is about as follows: For some years of the early part of my practice, I had been so firmly impressed with its dangerous cumulative powers, that I used it with so much caution that no perceptible effect was observed from it. But while I know that it is a powerful medicine, I have long since learned that these properties have been too greatly exaggerated, and that with care, it is as safe as any of our powerful medicines. I have also been led, from clinical observations, first induced by statements from good authority, from the opinion that it was a cardiac sedative to the direct reverse, viz: That it is one of our best cardiac stimulants and tonics. Clinically, I have observed that those cases of palpitation, irregularity of pulse and dropsy, anasarca, dysnœa, etc., which grow out of cardiac weakness, were formerly of great annoyance to me, and I often failed to give any more than very temporary relief. But now such cases under digitalis are generally relieved with as much certainty as an ordinary intermittent fever.

It is sometimes almost wonderful to see the change which this agent effects by careful and persevering use.

In one case of dilatation of the left ventricle, in a man somewhat advanced in years, there was undoubted evidence of failure of the wall of the ventricle; the pulse became weak and intermittent; at every few beats the skin became gradually more livid; anasarca made its appearance; the respiration was also greatly interfered with, etc. He had been kept on tonics, with good hygienic regulations, and good diet, for months, but grew steadily worse, and the pulsation more irregular and feeble. I placed him on free doses of the infusion of digitalis, and after getting the heart reasonably under its influence, the dose was diminished to a half drachm, and continued twice a day, which quantity he continued to take for eighteen months. Soon after its commencement an evident improvement was observable. This continued gradually in his favor, till at the end of three months he was quite comfortable, but it was continued at least six months beyond the last vestige of any troublesome heart symptoms. At this time, now four years ago, a stronger or healthier old gentleman can hardly be found.

Numerous cases of feeble heart action could be here related, and of dropsies, pulmonary congestions, etc., growing out of feeble heart, which have been relieved by digitalis, but I presume it is needless here to prolong this paper in that manner.

We will next endeavor to point out that class of cases in which it is indicated, and its contraindications, and for the present leave this subject, feeling satisfied that we have endeavored to do our duty in demonstrating that *digitalis is a decided heart tonic.*

Indications.—In nearly all cases of feeble pulse from feeble heart.

In dilatation with or without compensating hypertrophy.

In valvular insufficiency.

In mitral obstruction.

In mitral regurgitation.

In aortic obstruction.

In aortic regurgitation *doubtfully.*

In degeneration of the cardiac walls it is indicated, but must be commenced with small doses, gradually increased, and closely watched.

In neurosal angina pectoris, not connected with serious structural degeneration.

In cardiac asthma or false angina pectoris it is valuable.

In cardiac asthma following or resulting from severe acute disease.

In shock it is valuable.

In palpitations not purely functional, it is not admissible, or is contraindicated.

In tricuspid regurgitation.

In tricuspid obstruction.

In greatly degenerated walls, or in great degeneration of the arterial coats.

In hypertrophy from plethora, with little observable dilatation, its use is questionable.

In most if not all functional disorders its value is questionable, except in cases of quite feeble pulse.

Its use as a diuretic is indicated where there is loss of tone in the circulation as a cause of the scant secretion of urine.

The modes of action as produced by digitalis are given by Fothergill as follows: "The series of altered actions consequent upon increased contraction run in the following order or sequences; and it may be desirable for the sake of lucidity to arrange in a series of propositions, each depending on the one before, like a logical syllogism. The effects of increased contraction are, then:

1. Increased arterial distension and tension, which give rise to the systemic symptoms, and further causes

2. Increased arterial recoil. This is the propelling power for the coronary arteries; and thus arterial recoil means—

3. Increased or improved coronary circulation; and that, in turn, produces

4. Increased nutrition of the heart, which results in

5. Compensatory hypertrophy. In connection with these, we have also to consider—

6. Atheroma and fatty degeneration of the heart fibres."

These propositions by their study show that digitalis follows the line which nature indicates by her attempts to restore or regulate the circulation of the system in heart diseases. So long as these indications are closely followed in its use, they will prove of the greatest value to the subjects of cardiac disease.

The elucidation of these propositions may form the subject of a future paper.

SALICINE.

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Salicine is the active or medicinal principle of willow bark. It is derived principally from the salix helix, while the bark of the other varieties of willow possess it, as well as the different varieties of poplar. It is found more abundantly, however, in the bark of the salix helix, consequently that variety is said to be almost the only one used in its manufacture. As the process of manufacture falls entirely within the province of the manufacturing chemist, and not within the sphere of the therapeutist, we will not notice that process in this paper. Salicine is a white powder, somewhat resembling sulph. quinia, but distinguishable by being heavier, less delicately crystallized, and not so adherent in flakes. It is said, however, to be used in adulterating quinia, and I believe I have seen specimens of quinia which contained it. It is not soluble in sulph. acid like quinine, but turns to a red color when the acid is applied to it, thereby making the acid the test for its presence in a suspected article of quinia. It is soluble in hot water, and moderately so in cold water. Its taste is intensely bitter, but does not remain so long in the mouth as the taste of quinia. The tonic properties of willow bark were known long before the discovery of salicine, and the bark was extensively used upon the European continent (in many portions of which the tree is indigenous as well as on this continent) in domestic practice as well as by the profession. It was used in infusion or decoction, and also in powder. The bark was taken off of the tree, and when dried, became quilled. It was used as a simple tonic as well as an antiperiodic. As a tonic, the testimony was strongly in its favor, but not very strong as an antiperiodic, consequently it gradually fell into disuse, until the discovery of its active principle, called salicine. Salicine was procured in its pure state by Leraux, an apothecary of Vitry, France, in the year 1828. It had been obtained by several German and Italian chemists in an impure state, prior to that year (*Dunglison's New Remedies*, seventh edition, p. 641). The well known therapeutic properities of the bark of the willow soon caused salicine to be extensively used, and especially in France.

Miquel, a French physician, was among the first to institute experiments, and regarded from his observations that it was as efficient a remedy in intermittent fever as quinia, but requiring larger doses.

Many other observers soon verified the opinion of Miquel, and declared in favor of the antiperiodic virtues of the drug, and classed it as next to quinia for efficiency in intermittent and remittent fevers. But while in Europe, and especially in France, salicine was extensively used and favorably regarded, it does not appear that in our country it was much used, and seems to have met with little favor. About the year 1845, Dr. Lawson, then Surgeon-General of the United States army, authorized experiments to be instituted with quinia and salicine, in order that the relative value of each might be made known as antispasmodics. Dr. E. D. Fenner, of New Orleans, having experimented fully with the drugs, gave it as his opinion that salicine was fully as efficacious as quinia, but required to be given in doses three times as large. But it appears that Dr. Fenner's opinion was based more upon the relative price of the drugs than upon their actual relative power or therapeutic agency. The price of quinia at that time was no higher than that of salicine, and his conclusions were that seventy-five cents' worth of salicine was no more efficacious in twenty cases of intermittent fever than twenty-five cents' worth of quinine.

The therapeutic properties of salicine can be regarded as tonic and antiperiodic, and testimony is not wanting to class it as such an agent. Without giving further the opinions of authors upon the drug, we will now endeavor to show that salicine is a drug of no little utility. Our first acquaintance with it was during the years of 1864 and 1865, when the price of quinia was very high on account of the war. We did not have, however, much experience with it as an antiperiodic, from the fact that the country in which we were practicing, was very little affected with malaria. We used it as a simple tonic in cases where, in our judgment, quinine was indicated, and saw no reason to doubt its utility as a therapeutic agent. Since then we have been using it, and while we are free to confess that we do not regard it as certain in its action in intermittent or remittent diseases as quinine, yet, in many instances, it can safely be relied on, and on account of its being less irritating to the stomach, can, in some cases, be used more

advantageously in some forms of neuralgia—those which simulate migraine, or sick headache, we have found it beneficial. The first case in which we gave it a fair trial, was one known popularly as sun-pain. The patient had suffered with a pain above his left eye, periodically, for years, the character of which was to remit at about 12 o'clock in the day, and then come on violently about 6 o'clock, or sunrise, the next morning. I used hypodermic injections of morphia and sulph. quinia, and relieved him of his first attack, in which I saw him in about ten days. In about six months it again made its appearance, and was relieved after about ten days of suffering by the same treatment. The pain again appeared, after a lapse of about six months, and the same treatment was again tried: morphia, hypodermically, and quinine, for about two days, with no relief whatever. I then prescribed about ten grains of salicine at a dose, to be repeated in two hours, beginning about 3 o'clock in the morning, and had the satisfaction of seeing my patient relieved after using the prescription two mornings.

In this case, the morphia injections and quinine in large doses always severely nauseated the stomach. The salicine did not nauseate at all, and, besides, did not produce the ordinary condition known as cinchonism. The second case was not of the same character, but the patient complained of a dull, throbbing headache, commencing about daylight, and leaving him about noon. It had annoyed him for several days, but he was busily engaged at his work, and never ceased on account of the pain. I gave him six powders of salicine, containing about six grains each, ordering him to take one at bed-time, and two early in the morning, at an interval of about two hours. The six powders gave him entire relief.

Others, of a like character, might be enumerated here, but the above will suffice to illustrate the action of the drug in cases of a neuralgic form, which seem to depend upon what might be called centric causes, as no appreciable cause for the pain could be found in arrest of secretion on initiation of internal viscera. In such cases, we believe it to be as powerfully antiperiodic as quinine.

Now, to what extent salicine may be antiperiodic in regular intermittent fever, and what influence it may have over malaria in the blood, we will not pretend to say. Our use of it has not been sufficient to aid us in arriving at anything like a fixed conclusion on

this point. If quinine exerts its antiperiodic process as a spanæmic, we are inclined to think that salicine does also; while in small doses it certainly acts as a mild tonic, aiding digestion and assimilation. Upon this ground, we have administered it in cases of *chronic diarrhœa, with benefit,* combining it with rhubarb, in small doses, and repeating it every four hours. As a simple tonic, its therapeutic process evidently depends upon its bitter principle and power to enrich the blood, while it evidently has further action upon the nervous system. When given in large doses, it does not produce in many instances that peculiar condition which quinia does, commonly called cinchonism; while if it does in others, only to a very limited extent.

While we do not regard salicine as efficacious or valuable an agent as quinine, we nevertheless regard it as a very valuable addition to our materia medica and to the practitioner, who supplies his own drugs, and in many instances gives both his labor and drugs gratis. It would be a means of saving, as it is only about one-third the price of quinine. We would not, however, urge such a reason as an apology for its use, if we did not have confidence in its virtues as a therapeutic agent. We employ it in powder, combined with an equal amount of white sugar, or in pill, or dissolved in hot water. As it is perfectly soluble in alcohol, it could be employed as a tincture. No substance as a simple salt or chemical product, is more free from impurities than salicine, and this demonstrates the very valuable aid of organic chemistry to the therapeutist in freeing many vegetable preparations from all inert principles by extracting the active, thereby lessening the dose and making medicines more agreeable to the patient. Upon the authority of Von Dem Bush, a German physician, salicine can be employed in cases where there is a heavy secretion from mucous membranes. He instances bronchitis and leucorrhœa, in which cases he used it in decoction with polygola amara, or Iceland moss. We have never as yet employed it in such cases, but believe it to possess alterative powers over mucous surfaces, as instanced in the fact that it will aid digestion and assimilation, where there is atony of the digestive organs. From what we have said, from our own use of the drug and the testimony of others, we feel justified in drawing the following conclusions:

1. Salicine is a safe and reliable tonic and antiperiodic, second in favor to quinia.

2. It can be used in cases where there is gastric irritation to better advantage than quinia.

3. It is an alterative to mucous surfaces, and can be safely employed as such.

4. It deserves to be more freely used by the profession, as a matter of economy to both physician and patient.

THE CAUSE OF PERIODICITY IN INTERMITTENT FEVER.

BY A. C. EDWARDS, M.D., OF ALABAMA.

This is a subject that has engaged the attention of the medical profession since medicine has been cultivated as a science. Many and various have been the theories advanced in relation thereto each of which has had its votaries to laud it for a season, then it passes away to give place to the views of some other enthusiastic investigator. It is with diffidence that I presume to add another to the long list of theories on this intricate subject; but the fact that malarial fevers have periodic exacerbations is evident, and an explanation of that fact is the purport of this paper. My first inquiry will be, What is the cause of malarial fever? A few years ago, any educated physician would nave answered, *Marsh Miasmata;* but the onward march of scientific investigation has shown this answer to be but the scapegoat for professional ignorance. We will examine some of the changes that occur in the transition from a state of health to the condition known as intermittent fever. It is an admitted fact, that there are certain localities more favorable to the production of this form of disease than other localities are.

A person in health exposes himself to this deleterious locality, and while there receives into his system something that brings about certain changes. These changes are brought about so gradually as to be almost imperceptible. Observation has shown that such an individual will remain in a state of complete health until

a certain day after exposure, which is almost uniformly on the seventh day. On that day he will feel a slight chilly sensation, perhaps followed by a slight fever. What is this great enemy which has been taken into the system, and has produced such fearful results? And what has been the *modus operandi* by which it has caused them? In answer to the first inquiry, I will say that the great cause of all this disturbance is an animalcule, or an immense collection of animalcules, and, as this is an admitted fact, established by the researches of modern physiologists, I shall not enter into any argument to sustain it. In answer to the second question, I shall advance some views that, perhaps, will meet opposition from some of my medical brethren. I cannot give into the views of a distinguished writer, that all these phenomena are caused by these animalcules exciting a ferment in the blood, but shall endeavor to account for them on natural principles.

I shall proceed first by assuming that these animalcules are subject to the same laws that govern all the animal creation. That in accordance with these laws they require food for their sustenance, suited to their condition. Finding themselves imprisoned in the system, nature demands sustenance, and they are forced to appropriate the material with which they are surrounded. The position I take is, that the blood of a healthy man contains a principle that they can appropriate to their nourishment, and that so long as they find proper nourishment they remain quiet and the system tolerates their presence. That when the material in the blood, suitable to their nourishment, becomes exhausted, then they must seek other nourishment. That they begin then to feed on the internal coat of the arteries, thus attacking the organic structure of the system. Nature then revolts at their presence, and summons all her powers to enforce their ejectment from her domain. The irritation of the internal coats of the arteries causes a determination of the blood from the surface to the internal regions of the body. The surface of the body being denuded of the heat-given principle, becomes cold and we have all the symptoms of a chill. When the animalcules obtain sufficient nourishment to satisfy them, they cease their irritation; the blood resumes its wonted channels, nature rouses herself to repair the injury, and we have all the phenomena of a fever succeeding a chill. The second position I take is, that there

is a seven day's supply of food in the blood of a healthy person for these animalcules. Hence we find the system tolerates them for seven days, and until they have exhausted the supply of food in the blood and begin to attack the organic structure. A physician comes to the sick man and, after proper preparation, saturates the blood of the patient with quinine. Now is not the principle consumed by these animalcules from the blood of a healthy man identical with quinine? They, finding the blood saturated with a principle suited to their nourishment, cease their irritation to the arteries. Hence, in common parlance, the chill is broken. All physicians have marked the great proneness to a return of the chill on the seventh day; and why? Because, being but a seven days' supply of food furnished them, they have exhausted it and again attack the organic structure. A few observations as to the cause of the daily periodicity, and I am done. My view is, that they have stated times to seek their nourishment; that when that time rolls around, they begin their irritation and we have a chill; on the next day, at the same time, they must have food, and hence we have a recurrence of the paroxysm.

SALICINE IN DIARRHŒA AND DYSENTERY.

BY J. C. BISHOP, M.D., OF MIDDDEPORT, OHIO.

That season of the year being at hand, when both children and adults are peculiarly susceptible to enteric affections, it may not be out of place to call the attention of the profession to the efficacy of salicine, the active principle of the *Salix Alba*, in some of these disorders. Heretofore this drug has been employed principally as a substitute for Peruvian bark in intermittent fevers, especially where the stomach rebels against the quinia, with good results. Having had occasion to observe its peculiar effects, I have lately employed it in a number of cases, not less than twenty, of diarrhœa and dysentery in both children and adults, with a success so unlooked for, that I am induced to recommend it to the notice of the profession, with the hope that it may prove equally as beneficial in

the hands of others as in my own. The precise "*modus operandi*" of the drug, I shall not at this time pretend to explain; yet, that it has a peculiarly astringent and tonic action upon the mucous membrane of the stomach and intestines, seems well established by its effects, as manifested in disorders of these viscera; nor have I noticed any marked systemic effects in the cases in which it has been employed, other than those ascribed; and yet it has entirely supplanted the use of narcotics in these affections in my practice.

The following cases taken as they occurred, without reference to publication, will serve to illustrate the effects of its employment in the cases reported, which are borne out, as I am informed, in the practice of other medical gentlemen in this place.

Case I.—C——, male, æt eight months, chronic diarrhœa; discharges almost constant, thin, watery, and emitting an intolerable odor; tenesmus extreme; abdomen tender and sympanitic; patient poorly nourished; emaciated almost to a skeleton; very weak; eyes sunken, and presenting a peculiarly pinched expression of countenance; had been sick about four weeks when I saw him; prescribed the following: ℞. Salicine, ℈i.; sach. alb., gr. x.; ft. chart, No. x. M. Sig. One powder to be given every two hours in a little milk. This was February 15, 1874.

February 16.—Saw patient again, and was surprised to find him resting well, the discharges less frequent, and general appearance slightly improved; treatment continued.

February 17.—Patient still improving; nurses with avidity, and milk seems perfectly digested; abdomen less tender and tympanitic; pulse nearly normal; respirations easy and regular.

February 18.—Patient presents appearance of comfort; diarrhœa almost entirely relieved; general condition much improved; treatment continued as a precautionary measure for a week; discharged.

Case II.—F. Q——, male, æt two and a half, formerly vigorous and active, now languid and restless; has been suffering from extreme diarrhœa for several weeks; discharges offensive, and amounting to fifteen or twenty in the twenty-four hours; no appetite; skin hot and dry; tongue furred; bowels tender and tympanitic; prescribed same as above, and in two days patient discharged well.

Case III.—W——, male, æt one year; thin, nervous and poorly nourished; had been suffering with diarrhœa for a week;

discharges frequent, offensive, and containing considerable mucus and blood; circulation and temperature considerably increased in morning, and profuse nocturnal hydrosis; prescribed the salicine same as above, and in two days patient discharged well.

CASE IV.—W. J——, male, laborer, æt fifty, bilious habit; presented a severe type of dysentery; discharges quite frequent, scanty and containing mucus and blood; tenesmus extreme; had been sick four days; no appetite; skin hot and dry; tongue coated and protruded with difficulty; complains of great pain in bowels, increased on presure; patient weak and irritable; symptoms tending to increase in severity towards evening; prescribed: Salicine, ℥i; ft. chart, No. x. Sig. One powder to be given every three hours. This was July 14, 1874.

July 15.—Complains of slight tinitus aurium; tongue coated; some nausea; discharges slightly less frequent, but still contain blood and mucus, mixed with bile; tenesmus same as yesterday; ordered treatment continued, with the addition of hydrarg. chloridi mite gr. i., to each powder.

July 16.—Patient passed a more comfortable night than since the attack; seems less irritable; pain in bowels subsiding; tongue slightly improving in appearance; discharges frequent, but not so offensive; no appetite; calomel omitted; salicine continued.

July 17.—Passed comfortable night and much improved; appetite slowly returning; able to sit up in bed; tongue clean; discharges less frequent; pain and tenesmus almost nil; pulse and temperature normal; salicine continued "ter in die."

July 18.—Patient slept well all night; had no discharge from bowels since previous evening; pain, etc., entirely relieved; appetite good; ate a hearty breakfast and feels well; discharged.

No comment is needed, and a repetition of cases unnecessary. A trial of the drug will generally lead to its extended use; for, in my own hands, it has certainly proven almost a specific.

Extract of Conium, in doses of 2 grs., repeated several times a day, is said by some to be a valuable remedy in preventing inflammation of the breast of recently confined women, as a consequence of over-distinction of the milk ducts.

Selections.

TREATMENT OF HEMORRHAGIC MALARIAL FEVER

BY E. D. M'DANIEL, A.M., M.D., OF CAMDEN, ALA.

In the treatment the indications are,—

First. To stay the hemorrhage.

Second. To correct the derangements of the digestive function.

Third. To prevent additional paroxysms.

Fourth. To soothe the injured organs and to make suitable restitution for the blood that has been lost.

These Indications are to be met as follows:

First. Take about grs. xv. of calomel and grs. xv. of bicarbonate of soda, mix them well and divide into vi. equal powders, of which give one dry on the tongue, to be swallowed with a mouthful of cold water; give these powders continuously, one every two hours, until the constipation is overcome or the diarrhœa corrected. If any one of the powders is thrown back or believed to be thrown back by vomiting, let no time be lost, but another immediately given, and so on, until the vomiting is palliated, (and this will generally not be long) and let the insatiable thirst, in the meanwhile, be indulged with pellets of ice, if this can be had.

Second. Apply heat to the general cutaneous surface, either by the hot-air bath, or by the hot-vapor bath, or by surrounding the patient with hot irons, hot bricks, bottles of hot water, bags of hot salt, or otherwise as most eligible under the circumstances. A cataplasm of mustard should also be applied to the abdomen, and should extend high up on the chest so as to relieve the oppressed respiration as well as the nausea. The mustard should by no means be allowed to blister, but merely to redden. The feet and legs should be placed in a tub of strong mustard-water as hot as can be borne, and should be kept in this bath as long as can be borne, without decided fatigue. Not the least heated air or heated vapor should be allowed to be inhaled, but the face of the patient should be industriously fanned and wiped with ice or, in the absence of ice, with the coldest available fresh water. The cold wiping should be done rapidly and perseveringly but interruptedly, as by this method, its effects, which is exerted by stimulating reflex nerve-

action—both local and general, both excito-motor and excito-vasor —and also by soothing and moderating the excessive and oppressive sensation of heat, may be most steadily and lastingly kept up. In this way the application of heat to the general surface may be almost indefinitely prolonged, and its brilliantly salutary effects—directly in restoring the skin functions, and indirectly in arresting the hemorrhage—will become promptly and conspicuously manifest. The sighing will cease; the nausea and vomiting will disappear; the jactitation and anxiety will subside, and the utterance of the patient instead of the despondent murmur, "Oh, I feel so bad," will be the grateful and hopeful admission, "I now feel better." But if, as will *exceptionlaly* happen, and that, too, when the surface of the body is pale, cold and collapsed—a condition of surface not at all incompatible, but on the other hand, often associated with a subjective sensation of most intolerable morbid heat—the hot applications can absolutely not be borne and should seem to augment the excessive existing debility and oppression, then they should be alternated by the old Russian dash, or replaced by the use of ice or cold water all over the body, according to the method already advised for the face. Now, I know that there are many honest and very intelligent physicians who regard the heat simply as an invariable stimulant and cold as necessarily an absolute sedative, and who will be at a loss to understand how two modes of treatments that are, superficially considered, so opposite as the two here designated, can be rationally consistent and both practically safe and successful. I may remind such that in a general sense, extremes may meet, and that the morbid effects of excessive heat and of excessive cold, as exhibited respectively in burns and in frostbites, are strikingly similar. And so in the therapeutical applications here advised, the heat and the cold ultimately reach the same curative result: the heat directly stimulates the cutaneous nerves and capillaries, and thus mainly acts in restoring to the skin the lost powers and functions of its nerves and exhalents: the cold imparts a shock—not one that is depressing but stimulating; one that excites reflex nerve-action and thus re-establishes vascular secretory functions that have been suspended. The fact that cold applied as here advised, is truly, really and practically a stimulant, is beyond all question. A bladder of pounded ice will, in these fevers, often produce the redness of a rosebud on a surface on which a sinapism will excite neither color nor sensation. I have, occasionally, merely by spring-water at 60° Fah. temporarily removed the icterode hue from the skin and revived temporarily the weakened capillary action. And that cold thus applied is not only a remedy occasionally allowable, but a well-established invaluable, heroic treatment in the congestive fevers of the tropics and of sub-tropical climates, and

even in the congestive stage of such fevers, is a matter of accredited medical history, and is taught by Currie, Warren Stone, and so many other great masters of medicine, that it may be regarded as a canon in our medical creed.

That the restoration of cutaneous action, and especially of the perspiratory function, and the use of proper medicines of the purgative class, are the rational and appropriate remedies for the hemorrhage, which is the great and imminent danger in hæmaturic malarial fever, must, I think, be obvious from the pathology of the disease upon which I have insisted. That they are the remedies which are sanctioned by practical results is equally clear.

Dr. J. C. Osborne, of Greensboro, Alabama, doubly taught by observation and by experience, states that the warm bath gave more comfort and quiet than any other remedy. This testimony dates as far back as 1867. In the same year Dr. East, of Grimes county, Texas, treated cases of the disease, and afterwards published a paper in the *Galveston Medical Journal*, from which are taken the following extracts:

"I found the patient complaining of frequent chilliness, a hard, frequent jerking, though not full pulse, frequent discharges of bloody urine, with griping pain in the bowels; skin yellow, rough and dry. The tongue red on the margins, and coated with a yellow fur in the middle, bitter taste, conjunctiva deeply stained and vision clouded. The patient complained of epigastric uneasiness, spirits much depressed, languor and nervousness. There was a general discoloration of the skin, attended with smarting and itching. Bowels constipated. ℞. Mild chloride mercury, grs. x.; sacchar. alb., grs. xx. Make powders No. iij.; ordered one every three hours; also, a saturated solution of Epsom salts, teaspoonful every three hours; ordered, also, a hot pepper and mustard foot-bath under cover.

"On visiting the patient the next day, I found him quiet—had had three good discharges from the calomel and salts; free from fever; and had discharged no bloody urine since midnight. Ordered quinine, grs. iv., Dover's powder, grs. ij., every four hours, and also a teaspoonful of the salts solution every four hours, making a dose of one or the other every two hours.

"Was called to the patient again at 6 P.M. Symptoms all aggravated; began to get worse after the third dose of quinine and Dover's powder. Intense cephalalgia; suffusion of the eyes; debility; listlessness; dull countenance; discharging bloody urine every half hour; a most painful and persistent aching of the back; tongue loaded with a yellow fur, and breath very offensive. Ordered a hot salt and mustard foot-bath under cover, and directed gelsemin, grs. ss., spirits nit. æther, f. dr. j., every three hours in water.

"Next morning found patient better, passed no bloody urine after the second dose of gelsemin and nitre. Ordered the foot-bath at night for two or three nights, and the gelsemin and nitre to be kept up at intervals of four hours for two or three days, with a tablespoonful of the salts solution every morning. Ordered, also, a little egg-nog. Patient relieved."

Dr. East states that this same patient—John Stevens—had, a little more than one year afterwards, another attack of the same kind, in which substantially the same treatment was employed, with like happy effects from the purgatives and the hot applications, and the same deplorable symptoms rapidly following the use of quinine. He also states that about the same time he had three other kindred cases, and treated them similarly with similar results.

In a most valuable letter, kindly addressed to me by my highly-esteemed friend, Dr. A. J. Reese, and dated Mobile, Ala., April 2d, 1874, the author says: "I have concluded to write you a few lines on the subject of your essay, and particularly, to call your attention to the treatment which I found successful in Dallas county, in 1867, and subsequently. It is not my purpose to review the practice of any, but only to give the plan of treatment adopted by myself with almost universal success.

"First: A dose of calomel is given to commence its work of disgorging the mucous surfaces, removing the vitiated matter and assisting the liver to resume its functions so soon as reaction takes place. To produce this result—reaction—to restore an equilibrium in the circulation, and to force the skin to assist the over-burdened kidneys in performing double duty, I employ heat (one of Tyndall's modes of motion). For this purpose, a hot-air-bath, with patient well covered with blankets until there is free diaphoresis (the patient breathing pure air, as much as possible, in the meantime). When this point has been attained, and the vomiting ceases, the patient's thirst may be gratified with cold lemonade, which may be given as rapidly as absorbed. In the absence of lemons, I have used chlorate of potash as an oxygeneating agent. Should the artificial heat require assistance to stimulate the capillaries, atrophine, alone or combined with morphine, hypodermically, should be added. The hæmaturia ceases usually soon after reaction takes place, and there is free diaphoresis."

The same in tenor is the testimony of Dr. Robertson, of Birmingham, Ala., who says that he has had the greatest success by wrapping up his patients in blankets wrung out of hot water, and thus promoting perspiration.

Dr. J. Paul Jones, of Camden, Ala., tells me that about three years ago, he was sent for many miles to see a youth who was suffering from this pernicious form of fever, and found the patient in

a state of a very considerable lapse. Being without any fixed opinions on either the pathology or treatment of such cases, he addressed himself to the relief of what seemed to him the most urgent symptom, namely, the collapse. He plied his patient with heat, by bricks, bottles, and poultices and the like, covered him with blankets and quilts, succeeded in getting reaction, and found that the hemorrhage ceased, and with it all the other very urgent symptoms. He has, ever since, uniformly adopted the same course of treatment in similar cases, and I know that he has inaugurated in his practice in such cases, a new era of most gratifying success.

Before I pass from this head of the treatment, I think it important to call your attention to some substitutes for calomel and soda, that seem to me worthy of careful trial with the view of correcting the conditions of the stomach, liver and bowels. Powdered ipecac, one or two grains, may be substituted for the two and a half grains soda with the calomel in the prescription above recommended; ipecac may also be used in place of the calomel, and linked with the soda for the same purpose; podophyllin has been highly recommended in small and repeated doses instead of the calomel, but I cannot guarantee that it is equally efficacious. I think it likely, on the theoretical grounds, that the carbonate of lithia—so efficient in lithic varieties of urinary deposits—would be better, associated with calomel, than is the soda. It deserves a trial here as well as in the prophylaxis to correct that condition of the blood and urine which leads to the nephritic lesion.

I also mention, in passing, that if you expect any benefit in this hæmaturia, from substances known to do good in the proper hemorrhaghic diathesis—such as alum, gallic acid, tannin, acetate of lead, and persulphate and perchloride of iron—your expectations will be disappointed, and for the reason that there is not here a charge of blood characterized by reduced fibrin and diminished coagulability, or by things abstracted; but on the other hand, a change dependent on things superadded, excrementitious matters being retained and constituting blood poisons and kidney irritants. The only hemostatic adjuvants worth one moment's consideration here, are arsenic, mur. tinct. of iron and hypodermic injections of fluid extract of ergot. I think well of these skillfully used. The arsenic, however, should never be given in the acute stage of the disease, in the nauseating form of Fowler's solution, but in powder with some demulcent substance, like powdered liquorice. The mur. tinct. iron cannot be given and retained until the condition of the stomach has been improved, and then it will be found that the hemorrhage has also, already ceased. These adjuvants will be rarely demanded.

3. I now proceed to the third indication of Treatment—the

prevention of additional paroxysms. This is an easy task, if the previous indications have been successfully and efficiently met. The wonderful general impression made by our disease; the stunning shock to the nervous system; the fearful loss of blood; the grave, traumatic-like lesion inflicted on the kidney, and the other sudden great changes every where apparent, seem, temporarily, to break the morbid habit and to interfere, for a while, with the periodic tendency. If the gastric, intestinal and cutaneous functions be continually watched and properly sustained, I believe that the immediate demand for specific antiperiodics will be, by no means, great or imperative, and if, in any way temporarily contraindicated, their use may be, for a while, justifiably postponed. Now, my professional brethren, I know that I here step upon awful, solemn, dangerous and responsible ground; and being, in general, as you all know, an advocate of quinine to an extent that few prudent men can claim to exceed, I take the position that I do here, not without having made the proper, thoughtful, serious and conscientious pause. In Dr. East's experience, as far as I read it to you, and in much more that I did not read to you, just as often as he got his patients into a satisfactory condition and then commenced giving quinine, just so often *he plunged them back into hœmaturia*, with its unnumbered woes and dangers. And often, in conversation on this subject with physicians and others, I have had my attention called to cases in which hæmaturia followed quinine, apparently as effect does cause. And over and over, and over again, have I in my own practice observed the hæmaturia re-established or aggravated after quinine; and on the other hand, have seen the disease, with a very formidable array of symptoms, go handsomely on, without one grain of quinine, to a happy convalesence. Dr. A. J. Reese, in the letter already quoted, says on this point: "I wish to add, in conclusion, that quinine given in the congestive stage will hasten the hæmaturia. My attention was called to this fact in the first two cases I treated—males, ages respectively 26 and 45—the hæmaturia commencing in each a few hours after taking large doses of quinine—the discharges from the kidneys very copious. These two cases, together with all treated subsequently, were treated according to above plan—quinine withheld until the emunctories had resumed their work and hemorhagic action ceased."

Having placed before you this array of strong, indubitable and important facts, allow me to counsel you to farther and closer observation, and declining any advice as to whether or not you should give quinine in the bleeding stage of such cases, or very soon thereafter, to leave you entirely, for the present, to your own responsible judgment and discretion.

Where quinine produces obstinate emesis, it should not be given by the mouth at least, and emetics, if used at all, must be used with great caution throughout the treatment of the disease. The obvious effect of vomiting, and of all other straining efforts, is to augment the hemorrhage. But powdered white arsenic $\frac{1}{12}$ grain, with powdered liquorice root $\frac{1}{2}$ grain, is not nauseous, and being antiseptic, hemostatic and febrifuge, should not be omitted. It may be given every four or six hours.

4th. The fourth and last indication is to soothe the injured organs, and to replenish with blood the depleted vessels.

The kidneys should be sedulously guarded and protected from continued or additional irritation. Rest in the recumbent position must be secured; no irritating diuretic substances, such as cantharides, turpentine, or santonine, should be employed, either externally or internally; the urates must be antagonized by the use of the salts of lethia; demulcents and demulcent kidney-tonics, such as flax-seed tea with fluid extract buchu, may be combined with grateful, sweet spirits of nitre, and harmless diluents should be reasonably indulged. The stomach and bowels, irritated and tender, must be allowed repose; no solid food must be permitted, but the diet must be rigidly restricted to fluid or semi-fluid forms of light, bland and grateful aliments, until the digestive powers become gradually restored. Sweet milk alone, or with corn meal mush, if properly relished, will be excellent food. But in cases where the hemorrhage has been completely exhaustive, where the patient is constantly on the verge of deliquium, as where the least elevation of the head, or the least effort at self-movement, convulses his limbs with tremors, or veils his vision with darkness, or seals his pale lips in muteness, no hesitation should be allowed or time lost, but prompt recourse should be had to mediate or immediate transfusion. If human blood be not available, that of lambs or of calves may be defibrinated and used, or preferably to these, fresh cow's milk may be employed.

PUERPERAL FEVER.

After discussing in a clinical lecture some of the views with regard to the nature of puerperal fever, Professor Barker states that his "own belief is that it is a special poison characterized by certain general phenomena which always belong to the disease, with anatomical lesions which take the epidemical type of the seasons or of the locality in which it occurs; that it may be, or it may not be, accompanied by any of the local lesions; that it differs from in-

flammations in its nature and its results, but any and all of the inflammations may be present."

"We are aware that it produces purulent deposits, and if they have an external manifestation anywhere, it is to be regarded as an effort of the system to eliminate the poisonous element, and the prognosis is more favorable; but when the deposits take place in the internal organs, it must be inevitably fatal; that it may be, or or may not be, accompanied by septicemia; but more frequently, in prolonged cases such as those which last for five or eight days, it is accomponied with septicemia, but in other cases it is not."

The principal reasons for these views, which are contrary to the current opinions of the day, may be embraced under four heads:

1st. That puerperal fever has no special characteristic anatomical lesions.

2d. The lesions which exist are not sufficient to explain the cause of death or the progress of the disease.

3d. We may have the most intense inflammatiou of the pelvic organs, and the disease not be puerperal fever.

4th. The lesions differ essentially from those produced by inflammation.

"The characteristic features of puerperal fever, wherever it occurs, are a morbid increase in temperature, increase in the frequency of pulse, as well as change in character, and increased frequency of respiration. Any puerperal woman who shows a temperature over 100°, a pulse over 100 to the minute, and a respiration over 24 to the minute must be considered as being in an abnormal condition; and these phenomena ofttimes appear before any other symptoms which will attract attention. Puerperal fever is not invariably ushered in by a chill, for some of the most fatal cases are free from chills during the entire course of the disease. Pain and abdominal tenderness are unreliable symptoms in this disease. Tympanitis, also, is not characteristic. It is one of the most treacherous diseases you will ever be called upon to treat. The patient herself may say that she is better; there may be less pain, if pain has been prominently present; there may be less tympanitis, fever may have subsided, and desire for food returned, and the patient may even have a good appetite just before death."

With regard to treatment, Prof. Barker recommends such doses of opium as may be required to hold the pain in complete subjection, and it is sometimes astonishing to what extent this drug may be used without transcending the point of tolerance. The only rule which can be given with regard to its administration is to completely control all pain and nervous irritation. It is well to commence by giving such quantities as are represented by five or ten-drop doses of Majendie's solution, once an hour or two hours,

and continue, it may be, to a point just short of producing narcotism. In cases where there is apparently no peritoneal lesion, but where the secondary lesion is chiefly phlebitis or metro-phlebitis, quinine proves very valuable in doses of ten to fifteen grains, morning and evening. We are able to accomplish but very little in the way of elimination. To control the vascular and nervous system, the tincture of veratrum viride is superior to all other agents. It will reduce the pulse when the excitement is due to an inflammatory process, with an almost absolute certainty. It may be given in doses of five drops, once every hour or two, increasing to eight or ten, until we bring the pulse from 120 or 130 to 80, if possible. In a very large majority of cases it can be brought down to this point, but in some we cannot get it below 100. Quinine is of great value to control the tendency to suppuration, in doses of ten or fifteen grains, morning and evening, or even larger. The tendency, if any such exist, to produce paralysis of the motor power of the heart may be obviated by giving half-ounce doses of whisky, once in three or four hours. By combining fifteen or twenty grains of the bromide of potassium with each dose of the quinine, much larger doses can be given without unpleasant symptoms.—*The Medical Record*, July.

The Value of Pepsin.—In the *Boston Medical and Surgical Journal*, of January 1st, Dr. R. T. Edes describes some careful experiments with the various kinds of pepsin, from which he arrives at the following conclusions:

Much of the dissatisfaction with pepsin expressed by physicians is due to the use of preparations which contain little or none of it.

The pepsin made by Scheffer's process, is by far superior to any other in ordinary use.

The wine is feeble, but not necessarily inert.

Elixirs of pepsin and bismuth are humbugs.

Pepsin should be administered with an acid, and with as few drugs as possible. A small amount of alcohol is not inadmissible, but a large amount retards digestion.

Its beneficial action is *not limited* by the amount of albumen which it dissolves in a test-tube without change or renewal of any of the contents.—*N. Y. Med. Jour.*

Remarks, Gleanings and Extracts.

BY SWAN M. BURNETT, M.D., OF TENNESSEE.

More Testimony on the Alcohol Question.—Dr. H. C. Wood, in his late excellent "Treatise on Therapeutics," which proposes to consider the action of medicines from a physiological stand point, makes the following statements respecting the action of alcohol on the vital economy; and as he is an able experimenter, a close observer and a conscientious man, they are worthy of consideration at this time when so many and such diverse opinions are being promulgated, often by men who are in nowise worthy of confidence.

"From what has been said, it is certainly deducible that alcohol in small amounts is an *arterial* and *cerebral stimulant*, increasing functional activity in the nervous and circulatory apparatus; is a *food*, in the sense that it is destroyed in the system, and there performs a physiological office; is, when in sufficient quantity, a retarder of tissue changes, because it lowers heat independently of any action on the nervous system, and also probably checks excretion of carbonic acid and of nitrogen. If alcohol be oxydized in the body, and be a food, as it seems to me clearly proven, it must of course generate force, measurable by the modern standard of the heat-unit. A little calculation will show the importance, or rather the great amount, of the generated force. According to Dupré, one gramme of alcohol oxydized in the body evolves seven thousand one hundred and eighty-four units of heat, while the same weight of lean beef gives off only one thousand four hundred and eighty-four units of heat. It has been estimated that 9.3 ounces of lean beef equal to about two ounces of alcohol, will supply the necessary force to maintain the circulation and respiration of an average man for one day; that is, four ounces of strong spirit will suffice for this purpose. Since, to the ability of furnishing material whose consumption shall give power, is added the ability to restrict waste and to stimulate the functions of circulation and of the nervous system, it is evident that in alcohol we have a most important means of sustaining the system during the strain of an acute, exhausting disease."

Dr. Anstie, in the July number of the *London Practitioner*, also gives his "Final experiments on the elimination of alcohol from

the body. From these researches we learn that in various ways all the excrementitious matter eliminated from the body was collected and examined with reference to the amount of alcohol that passed through the body unaltered. Such pains were taken in the carrying out of the experiments, and such is the honesty of Dr. Anstie, that we have now certain knowledge that all the alcohol taken into the system is not eliminated unchanged, but that a large part, a high per cent., is consumed in some manner in the body. He says:

"If, then, the subject of the elimination of unchanged alcohol may now, as I presume, be considered as closed, we can see our way to the discussion of other important questions respecting the physiological *rôle* of alcohol:"

"1. If alcohol be a force producing food, as by far seems the most likely, it is probably of great value in that capacity, on account of the rapidity with which its transformations take place. It is, however, abundantly certain that beyond a certain dosage it becomes a narcotic poison of a very dangerous character in every respect: not the least disadvantage being that it cannot be eliminated to any considerable extent."

"2. If alcohol does not disappear by oxidation, it must undergo some, as yet unknown, transformation, after which it must escape unrecognized in the excretions. I have heard various attempts to suggest such modes of disappearance, but nothing so far wears any air of probability."

"3. If alcohol be however indeed oxydized, and yet does not beget force which can be used in the organism, this would be the strangest possible discovery. Considering the very high theoretical force value of six hundred to eight hundred grains of absolute alcohol which millions of sober persons are taking daily, we may well be hopeless of any reasonable answer to the question: Why does not this large development of wholly useless force within the body produce some violent symptoms of disturbance?"

A New Vaginal Speculum.—Instruments for bringing into view the vaginal walls, and the neck and mouth of the uterus, are almost without number. But the very fact of their great number and variety proves that no one has yet been brought to such a degree of perfection as to answer all requirements. Hence almost monthly, either a new invention, or a modification of an old one, is brought to the notice of the profession through the various periodicals of the country. Some of these claim one thing as a peculiar point of excellence, and some another, and there are very few that combine more than two features of marked advantage over their competitors. An instrument, however, the invention of Dr. R. Knoffl, of this city, has recently been handed us for inspection and trial,

which possesses so many traits of superiority, and is such a truly ingenious invention, that we think we would be doing our readers but justice in calling their attention to it. It is impossible, almost, to entertain a clear idea of the instrument without the aid of cuts or the instrument itself; but so far as a mere description will enable us, we will endeavor to convey to our readers an idea of the instrument and the manner of its operation.

Its essential parts are a double ring about two and a half inches in diameter, and a quarter of an inch broad, the two rings separated about one-eighth of an inch; and four fingers about four inches in length bent at a right angle at one inch and a half from one end—forming a figure like this: ⌐ The long line of the rectangle is annealed towards the end, so that it can be bent to any required position; the rest is very stiff and firm. The fingers are nearly one inch broad, and fenestrated; their thickness a little less than eighteen inches, so as to slide easily between the two rings. The ring is the mouth of the speculum, and the fingers form the length of the instrument, when the short arm is inserted into the insterstice of the two rings. It will be readily seen that if four of these fingers are inserted around the circumference of the ring, that the walls of the vagina, and the os uteri—if the fingers are properly placed—will be brought clearly into view. But it has occurred, doubtless, to some one to ask, How are the fingers maintained in position? We havn't four hands, one for each of the instrument-fingers, and if we had, we would have to be possessed of another if we wished to manipulate at all. But one of the beauties of the instrument is its self-retaining power. In order to obtain this power, a well-known, but hitherto (so far as my knowledge goes), unused law of mechanics, is brought into play, and the elasticity of the vaginal walls, by pressure upon the end of the fingers, clamps the short arm tightly in the interstice, so that not only is the finger firmly fastened, but the whole instrument is retained *in situ*, without the intervention of any ex-traneous aid.

The advantages of this instrument are obvious upon a moment's reflection. In the first place, it is simple in construction, no screws or levers to get out of order. 2d. Is compact—can be carried in the vest-pocket. 3d. Is self-retaining. 4th. Gives a clear and unobstructed view of the vaginal walls, such as no instrument before the profession does, and is thus most admirably adapted for operations on these walls. 5th. Can be used in any position. 6th. Can be used in cases where the vagina is too small or irritable to permit the use of the large and cumbersome instruments generally employed. There are various accessories, as a tenaculum and its holder, etc.—which space forbids our describing—which makes

this speculum, without doubt, the most complete of any yet brought out.

They are manufactured in this city, and any one wishing one can obtain it by writing to Dr. R. Knoffl, Knoxville, Tenn., where the instrument, with instructions for its use, will be sent. The price is $15.

Traumatic Keratitis.—Cohnheim, in his latest communication on the subject of inflammation, gives the following in regard to the inflammatory process in the cornea arising from trauma. It is to be remembered that the discovery which he has made respecting the phenomenon, or phenomena, we recognize as inflammation, is that the pus cell and the white blood corpuscle are identical; and that the latter, in order to become the former, has only to pass through the walls of the vessel and wander among the tissues. He and others have seen the white blood corpuscles actually passing through the walls of the vessels and thus wandering in the neighboring tissues.

The cornea is most admirably adopted for making observations respecting the wandering of these cells, and it is upon this tissue that many of his experiments have been made. His latest observations are recorded in the *London Medical Record* as follows:

"In every case in which, after an injury of the cornea, the tissue of the latter becomes infiltrated with more or less numerous pus-corpuscles, an alteration has preceded in the vessels of the conjunctiva next the cornea, consisting chiefly in the very marked injection of the vessels.

"That this injection of the conjunctival blood vessels is not the result of reflex-action can be proved, first, by the fact that traumatic keratitis can be very much favored by cutting the fifth nerve; and secondly, by the following experiment:

"In a rabbit, in which the facial nerve had been cut, in order to avoid the frequent movement of the eyelids, a portion of the cornea, two or three millimetres in diameter, is scraped off with a lancet-shaped knife; or the cornea is cauterized over a very small region with lunar caustic, care being taken that the caustic does not come in contact with the conjunctiva; or, finally, the cornea is cauterized with the knob of a red-hot probe. In all these experiments, generally no injection of the vessels of the cornea ensues, and the cornea remains perfectly transparent all round the injured part.

"In these cases, therefore, in which, after an injury to the cornea, an injection of the conjunctival vessels does ensue, and a subsequent opacity extends from the periphery towards the injured part of the cornea, there must be some other factor which produces the alteration of the vessels of the conjunctiva; it being proved by the

experiments just mentioned that it cannot be due to reflex-action following irritation of the sensitive nerves of the cornea. Cohnheim takes it as very probable that in consequence of the traumatic injury, septic agents, produced by certain changes of tissue, probably chemical changes, gradually extend from the seat of injury towards the periphery until the vessels of the conjunctiva are reached, in the walls of which they produce an alteration, which gradually increases. The effects of this alteration are the above mentioned injection of the blood vessels and subsequent infiltration of the cornea with pus-corpuscles. With this assumption agrees very well the fact that often traumatic injuries which produce keratitis, the injection of the vessels of the conjunctiva, which is always the first symptom, does not immediately follow the injury, but takes always sometime for its development. The very immediate conjunctival hyperæmia in man, observable after traumatic injury of the cornea, is to be accounted for by the very vehement rubbing of the eye, and the increased and energetic movements of the eyelids. If, however, in a rabbit whose facial nerve has been cut through, keratitis be produced *e. g.* after inserting a fine silk thread in the centre of the cornea, there is nothing abnormal to be noticed in the first hour; in the third or fourth hour, conjunctival hyperæmia is observable, which gradually increases, its acme not being reached previous in the twenty-fourth or thirty-sixth hour."

In the same paper the author shows, by a series of experiments, that the cause of all these phenomena is an alteration in the walls of the vessels; and that in producing their effects, it is only necessary for noxious agents to come in contact with the walls of the vessels, contact with the other tissues not being necessary. The whole paper is interesting, as it sheds more light on the now most generally accepted theory of inflammation.

Treatment of Hay Fever.—Hemholtz, who has already made himself famous as a physiologist, physicist and mathematician, has recently gained new laurels by his researches, pathological and therapeutical, on the subject of hay fever, from which he is personally a sufferer.

He has described his case and his treatment of it in a letter to Prof. Binz, which is published in a recent number of *Nature.*

It appears that he has had attacks of hay fever, or asthma, every season for the last twenty years. It begins with great regularity during the haying season, and runs a definite course. Of course, a mind like his could not resist speculations as to the nature of the malady which caused him so much discomfort, to use the mildest term, and within the last five years his investigations have been in the direction of a microscopical examination of the mucus discharged from the nares.

He has found that the mucus discharged during an attack contains vibrios, which are not present in that discharged whilst he is free from the disease. They are very small, the length of the joints being only 0.004 m. m.

Seeing Binz's article on the poisonous action of quinia upon infusoria, he determined to try the influence of the remedy on his vibrios. Accordingly, he injected, by means of a pipette, a weak solution into the nares, and by movements of his head, while in a prone position, brought the solution in contact with all the points of the nares, posterior as well as anterior. The effect was all that could be desired. By a regular application at the beginning of the season, he was able to stop its development completely. He is now entirely free from the disease.

The proper way to make the application is by the "nasal douche," and the strength of the solution should be such as to occasion a slight degree of smarting. The solution should always be used tepid.

This plan of treatment, if successful, is to be preferred to Holmes' cure of "six feet of gravel," which is at present generally acknowledged to be the only certain one known to the profession.

On the Value of High Powers in the Diagnosis of Blood Stains. To question has more interest in its medico-legal relations than the determination of the source from which blood stains originate. It has been held by many, that after drying, the blood discs become so distorted that it is not possible to distinguish, with certainty, the blood of man from that of the lower animals—especially the ox, sheep, goat, etc.

Dr. J. G. Richardson, of Philadelphia, holds that it can be thus distinguished, and gives his reasons for so doing in the *American Jour. Med. Sciences* for July, 1874. He has contended for a long while, in the face of very high authority, that the blood-corpuscles are *cells*, and in this article he maintains that it is by virtue of being cells, that by proper treatment they can be made to approximate their normal size after drying.

"In conclusion," he says, "I submit, that the results of my experiments above narrated *prove that*, since the red blood globules of the pig, the ox, the red deer, the cat, the horse, the sheep, the goat, are all so much smaller than even the ordinary medium size of the human red disc, as measured in my investigations, *we are now able by the aid of the high powers of the microscope*, and under favorable circumstances, to positively distinguish stains produced by human blood from those caused by the blood of any of the animals just enumerated, and this even after the lapse of five years from the date of their primary production."

Prolapse of the Vitreous Humor.—In the *Le Mouvement Mèdical*, Piermé has recently contributed an important paper on the vitreous, based to a large extent upon experiments performed on lower animals; but containing besides, many important clinical and pathological data. His conclusions are as follows:

1. The vitreous humor is reformed readily and speedily, both in the eyes of man and the lower animals.

2. Prolapse of the vitreous humor is of greater danger when the wound is large, and naturally the gravity of the accident is greater in proportion to the amount of the loss.

3. The vitreous humor may become the seat of inflammation in consequence of a wound, and this inflammation may terminate by resolution, by suppuration, or may become chronic.

4. The immediate evil consequences of prolapse have generally their origin in the choroid, and the ultimate result is atrophy of the eyeballs.

Iodoform in Venereal Ulcers.—After cauterization with nit. acid, or actual cautery, as may be required, and the slough has come away, iodoform is used either in powder or suspended, thus: ℞. Pulvo. iodoform, gr. xlv.; glycerinæ, ℥iij; alcohol, ℥i. Applied once a day, every other day, or twice a week, as may be required. *N. Y. Med. Rec.*

According to some experiments of Vulpian, the small motion of the tongue, that remains after division of the hypoglossal, is due to the fibres of the *chorda tympani* that are distribueed to it. He looks upon the lingual as a purely sensory nerve.

The largest blood corpuscle known belongs to the *amphiuma tridactylum* (congo cel). It measures 1-12 mm in its longest diameter. The red corpuscles of man measure 0.005 mm.

Ephriam Cutter, in the *Boston Medical Journal of Chemistry*, recommend Indian meal as a vehicle of heat. He considers it superior to any of the poultices in use.

The lungs of the Londoners are said to be much darker than those of any other people in the world—the supposed result of the fogs.

A single individual renders not less than 125 cubic feet of air unfit for respiration every twenty-four hours.

Remedy for corns: Equal parts of glycerine and carbolic acid applied by means of a camel's-hair brush.

Carbolic acid is used in the treatment of lupus, and it is said with success.

Doctors and the Poets.—Euricius Cordus, over three centuries ago, sang thus:

"Three faces wears the doctor: when first sought,
An angel's—a God's the cure half wrought;
But when the cure complete he seeks his fee,
The devil looks less terrible than he."

Pope, with his universal knowledge of men and things, says in the same strain:

"God and the doctor we alike adore,
But only when in danger, not before;
The danger o'er, both are alike requited:
God is forgotten and the doctor slighted."

Puerperal Amaurosis—Its Importance as a Symptom.—Dr. H. W. Williams reports in the *Boston Med. and Surg. Jour.* two cases of his own and four from Weber, of St. Petersburg. He is of the opinion that it has some relation with puerperal convulsions, though the latter is not always preceded by the former. Albumen is not always found in the urine. Primipara are seldom attacked.

He does not offer any special line of treatment; but advises that the physician watch closely for convulsions.

REMARKS, GLEANINGS AND EXTRACTS

BY A. R. KILPATRICK, M.D., TEXAS.

Vinegar Bitters.—A number of years ago, an individual coming overland with a company to California, served as cook for the company, and was styled "doctor" on that account. He settled in Calaveras county, and labored as a miner, without much success. His attention was then turned to the medicinal qualities of the herbs growing about him, and he came to San Francisco with the idea of making and vending a preparation to be called "Indian Vegetable Bitters," and to contain no alcohol. He fell in with an enterprising druggist of this city, who saw money in the project and embarked in it. At the suggestion of the latter, the "Indian" was struck out, and as the new medicine got sour by fermentation, it was concluded to call it "Vinegar Bitters," and to identify it with the movement against alcoholic drinks. The mountain herbs were cast aside, and aloes, being a cheap bitter, was substituted. "Nine sick persons out of ten," said the druggist, "will be cured by purging; whereby the aloes." So the cook became a doctor, and the decoction became sour, and Dr. Walker's Vinegar Bitters began their career in the newspapers.—*Pacific Med. Jour.*

Such is a brief history of the California Vinegar Bitters, and something like this will be found to be the history of many other nostrums. We have known death to be caused by persons taking this stuff. In a recent article in the *Medical and Surgical Reporter* of Philadelphia, it is shown that the long list of these patent bitters and tonics have from seven per cent. to nearly fifty per cent. of alcohol in them, the Hostetter's Bitters standing about the top of the list.

Hosteter's Bitters took their origin thus: Hostetter is a Greek, who came to America a long time ago, and if he is alive yet he must be quite old. He served as a bar-tender some time at Natchez, Miss., and made a drink which was very palatable to his customers, and they would visit his bar and call for his bitters. Lawyers and merchants and planters from the adjacent country would call for them, and after a time some of the wealthy men got him to put up bitters for them by the gallon or demijohn, which they took home and used for a common drink. The bar-keepers on the famous steam packets had such frequent calls for Hostetter's Bitters, that they had to call on him to supply them with the drink in kegs full. These evidences of their popularity induced him to go fully and regularly into the business, and his name soon became notable. He had an establishment awhile in New Orleans, and soon found men with money to aid him, when he opened a large house in Pittsburg, Penn., where he still supplies his bitters in immense quantities. Of late years, I observe he styles himself DOCTOR in his advertisements, but I never have learned what medical college conferred the degree on him.

It is needless to say his bitters, for which he claims such great medical virtues, are made of ordinary cheap whisky, with a little bitter decoction and essence of orange-peel. He and his partner, Smith, if he is a real personage, have made quite a fortune out of the bitters, and could retire from the business and have enough to live on.

Ergot as a Styptic.—Since writing the article which appeared in the September number of the SOUTHERN MEDICAL RECORD, on "Ergot in Hæmorrhage," I have tried it to check the flow of blood from a deep, penetrating wound in the shoulder, made by the small blade of a pocket-knife. The wound was so small and so deep that it was not deemed advisable to attempt any ligation, but the flow, though not arterial, was constant and persistent for nearly a week after the infliction of the cut. The patient had been subject to frequent and exhaustive epistaxis, and had been relieved of that by the fluid extract of ergot. The place was very tender, and such that it was difficult to employ bandages for compression, so I determined to try the ergot; and as he was quite feverish, I com-

bined quinine with it, and there was no more flow of blood after taking the first dose, still the medicines were continued longer for the tonic effect. I gave drachm doses of the tincture of ergot, as I had no fluid extract. This medicine is good also in diarrhœa, dysentery and hæmaturia.

It has been ascertained that ergot given to parturient women has no bad effect on the fœtus. Dr. Herschel reports a case of a child to which the nurse gave one drachm of the fluid extract by mistake, and which produced no bad effects.

Orchitis.—I have lately treated two cases of this disease which were caused by injuries, one being severely mashed by falling astride a log, the other caught on a wagon wheel, and subsequently made worse by lifting a heavy weight. There was febrile disturbance in both cases, requiring cooling laxatives. I used cold lotions of sugar of lead and belladonna in the first case without any benefit, and in the second with only very slight benefit. In the first case, one application of a strong solution of argenti nitras reduced the swelling and relieved the pain in a short time, and in the other the caustic was applied the second time after the lapse of three days, and acted as well as was desired. In a few days he was well. I am confident the nitrate of silver can be safely applied, and with prompt relief, to swelled testicle in cases of parotitis.

Correction.—*Xanthium Spinosum*, which I stated in the August number as the botanical name of the common *cockle bur*, is what is called *Tournefort*, and is not the native bur, but an exotic introduced into this country. *Xanthium Strumarium* is the real *bur*, *cockle bur*, *kuckold bur*, the pest of our fields and annoyance of our planters and laborers. Let me repeat, it is a good diuretic, a good hæmostatic, a good vesicant, and a certain cure for the bite of rattle snakes, given in decoction. Probably this correction is not really necessary, as very few people are particular about botanical names; but lest these few might be offended, or led astray by the mistake, I make the correction.

Incontinence of Urine in Children.—This troublesome affection, which has puzzled practitioners heretofore, is speedily relieved by the syrup of the iodide of iron, given in suitable doses at bed-time. A good combination is this: ℞. Syr. iodide of iron, ʒ ivss.; chloral hydrate, ʒ vss.; glycerin, ʒ ss.; simple syrup, q. s. to make ʒ viij. mixture. Dose, one teaspoonful at bed-time, and increased gradually to two spoonfuls. I have used the syrup of the iodide of iron alone, in from ten drops to a teaspoonful, with entire success, in cases which had resisted everything else, and other physicians say the same.

REMARKS, GLEANINGS AND EXTRACTS

BY T. CURTIS SMITH, M.D., OF MIDDLEPORT, OHIO.

The Value of Large Injections.—The *London Medical Record* gives a summary of recent studies on injections. The following are the practical results:

1. Enemata, if sufficiently copious, will reach the small intestine, the ileo cæcal valve notwithstanding, provided there be sufficient propelling force, whether that be gained by a long column of fluid in the apparatus (as in the use of irrigators), or by the patient's position, with the pelvis elevated, favoring the descent of the fluid, or by repeated action of the injecting instrument. For ourselves, we never could see that the valvula Bauhini could ever be regarded as a real obstacle to injections from below, provided these were sufficiently copious; and we had made some experiments at different times, which had given ocular evidence of the extent to which injections had penetrated.

2. Hegar's and Mosler's experiments, and Wilbrand's case, show that it is neither necessary to use complex apparatus, nor to put the patients into awkward and perhaps dangerous positions; since from three to five feet of pipe, with a funnel at one end and a suitable nozzle at the other, is all the apparatus we need; and the patients simply lie upon the back, and the only pressure required is that of the column of fluid. We may here remark, parenthetically, that we fail to see the pertinency of the long discussion about atmospheric pressure, sub-atmospheric pressure, and the like; because, whether in or out of the body, making allowances for temperature and the varied characters of the gasses, we take it that atmospheric pressure may be regarded as a fairly constant unit; were it otherwise, learned professors and their poor patients would alike be crushed by the superincumbent air. The real pressure we have to overcome is that of the patient's muscles, aided in some cases by tense gasses in the bowel; for, if any one will insert a tube into the rectum before the injection has come away, he will see the fluid come out in jets or spirts when the patients strain, and less markedly so at every descent of the diaphragm. In certain positions of the body, there is also the difficulty of "making the water run up hill," when we are administering an enema in the ordinary manner, ingeniously overcome by Hegar and Mosler, either by making the water run down hill (or rather down a long tube) first, or by shifting the position of the patient.

3. The safety and efficiency, or the benign action, of large enemata of water, gruel, and the like, is strikingly shown by these

experiments. We are strongly inclined, however, to believe that a very small quantity of soap, or of some neutral salt, is even less irritating to the mucous membrane than pure water alone. Except in rain water, or in water which has been frozen, man nowhere finds anything like a pure drink provided for him; and what is true in a superior sense, and, so to speak, *à priori*, is, we think, no less true *à posteriori*.

4. The caution impressed upon us by these experiments, not to allow air to get into the bowel, or as little as possible, is not an idle one. A very small quantity of air is not only intensely irritating to the bowel, but gives the greatest pain, almost agony in many cases. This fact was well known to our forefathers, although some of the so-called "trained nurses" of the present day, and many practitioners even, seem ignorant of it. Unless the precaution be taken to exclude air, the clyster is certainly not benign. To sum up all, large injections do reach the whole length of the large intestine, and beyond it; they are safe and speedy remedies for fecal accumulations, for some forms of intestinal obstruction (notably intussusception) and internal herniæ; for the treatment of intestinal ulcers, of hemorrhage from the bowels and diarrhœa; for worms, especially oxyurides and their congeners; as a means of stimulating and increasing the secretion of bile; and of introducing into the small intestine nutritious matters in a state easily susceptible of absorption.—*Med. and Surg. Reporter.*

Reports on Bloodless Operations.—The London *Medical Record* gives us the following brief abstract, made by Professor Esmarch, of his experience, during the past year of his experience in Kiel, of bloodless operations. The communication was made at the third sitting of the German Surgical Association, held in Berlin, April 8th to 11th, 1874.

From February 1, 1873, to April 1, 1874, above two hundred bloodless operations were performed in the Clinic at Kiel. Among them were the following:

Amputations.—Thigh, ten cases; one died with erysipelas and septicæmia.

Leg, eleven cases; one died with ditto.

Humerus, three cases; none died.

Total: twenty-four cases, with two deaths.

Disarticulations.—Shoulder-joint, one case; cured.

Hip-joint, one case; died of exhaustion.

Total: two cases, with one death.

Resections.—Hip-joint, three cases; one died of septicæmia.

Knee-joint, three cases; none died (one with subsequent amputation.)

Elbow-joint, two cases; none died (one with subsequent amputation.)

Total: eight cases, with one death.

Among the advantages of the bloodless method of operation, the following may be mentioned:

1. There is no loss of blood. (Anæmia produces a disposition to surgical accidents, by the tendency to coagulation, producing thrombosis, and leading often to pyæmia. Valsalva's method of treating aneurism acts by inducing greater coagulability of blood.)

2. It is a great advantage that sponges may be thus almost wholly avoided; for, with whatever care they are disinfected, one can never be absolutely certain that they are not sometimes the means of infecting wounds.

3. The larger arteries and veins are less injured in the bloodless method than with ordinary digital or instrumental compression, the construction being uniform, circular, by means of the soft parts, and distributed over a large surface.

Esmarch knows of no dangers, nor of any bad results. Paralysis he has never seen to take place. It may be produced, however, by too forcible construction of the limb. Esmarch applies the apparatus himself, and does not trust his assistants, who are rather inclined to overdo their business. It is quite remarkable how comparatively small is the force necessary to arrest all flow of blood through the arteries. The first turns must not be made too tightly; every superimposed turn increases the compression very considerably.

Gangreene has not been observed in any instance by Esmarch. Some probable advantages of bloodless operations must be shortly hinted at.

1. Local anæsthesia may take place after a few minutes. Richet has, indeed, already recommended forcible constriction of the digit for the operation on ingrown nail. Richardson's ether-spray, or ice and salt, produces anæsthesia much more quickly in parts made bloodless, as the warmth of the blood is excluded. The temperature of the bloodless limb sinks immediately.

2. Diseased parts, bones, joints, can be very easily examined before performing an operation. Esmarch narrated very graphically how, on a recent occasion, he demonstrated a diseased joint before his class, pointing out the conditions which make an amputation necessary.

3. Foreign bodies, splinters, needles, etc., are easily found.

4. Wounded arteries are easily exposed and secured. Antyllus' method is facilitated.

5. Operating without skilled assistants, or, indeed, without assistance at all, becomes possible in a way never before practicable.

Esmarch has received many letters of thanks from surgeons in various parts of the country.

6. It is suggested that death may be often averted, and cases of hemorrhage and transfusion avoided in anæmic persons, by bandaging the extremities, in order to temporarily drive the blood of one or two extremities into the body.—*Med. and Surg. Reporter.*

New Researches on Diabetes.—We learn that Dr. Pavy has obtained some experimental results which are likely to throw a new light on the subject of diabetes. He has found that the injection of fibrinated arterial blood in the portal system occasions a saccharine state of the urine. In one experiment, the urine after the operation contained 15 grains of sugar to the fluid ounce, and in others the quantity has amounted to nearly the same. In the counterpart experiment of injecting defibrinated venous blood into the portal system, the urine showed no signs of the presence of sugar. It thus appears that oxygenated blood passing to the liver causes an escape of sugar from the organ, and thence an accumulation in the system and discharge with the urine. It also appears that through the medium of the respiration of oxygen, he has succeeded in inducing a sufficiently oxygenated state of the blood to similarly give rise to the production of saccharine urine. He has further found that through the agency of the inhalation of puff-ball smoke an immediate and strongly diabetic state may be induced, and that the effect is accompanied with such a modification of the circulation that the blood flows through the vessels, as in the case after section of the sympathetic, without becoming properly de-arterialized. His experiments, he considers, suggest that, in diabetis of the human subject, the blood, in consequence of vaso-muscular paralysis, is allowed to reach the portal vein in an imperfectly de-arterialized condition, and thus determines the escape of sugar from the liver. We understand that his results are to be brought forward at the Royal Society as soon as its meetings commence.—*London Lancet. American Medical Weekly.*

Digestion and Absorption in the Large Intestines.—There has always been considerable uncertainty in regard to the question whether the large intestines are capable of digesting food. This power has been absolutely denied by several authors, as Blondlot, Frerichs, Braune, Funke, and Quincke, while others, as Zander, Schiff, and Eichhorst, have asserted quite as positively that the fluids of the large intestine are liable to digest both albumen and starch, the latter being first changed into sugar. Again, in regard to the form in which these substances may be absorbed in the bowels, opinions are also at variance; some claiming that the albu-

men must be first changed into peptone before it can be taken up, and others that fluid albumen may be as such absorbed directly. A similar diversity of opinion prevails regarding the ability of the intestines to absorb fats.

Some recent experiments by Drs. Czerny and Latschenberger, of Freiburg, throw some light upon these questions. The experiments were made upon a man who, through a malformation, had the anus situate in the left inguinal region, opposite sigmoid flexure. The rectum was so separated from the intestine above that matters could be introduced into it by the anus, and again washed out by a stream of water from above as from a retort. Various articles of food were thus introduced and experimented with, and the results which were obtained are thus stated:

"*The human large intestine and its secretions have no digestive action upon either coagulated or fluid albumen, nor upon fat.* Coagulated albumen, although left in the intestine for two and a half months, was not appreciably altered, nor was any change effected in fluid albumen in solution. After pouring in an emulsion of fat, the latter rapidly collected at the top, flowing together in large drops. Hence the large intestine not only has no emulsifying effect, but tends to destroy an emulsion already formed.

"The portion of intestine experimented upon absorbed 40 to 50 grammes of water within seven hours.

"*In the normal condition, fluid albumen in solution in water can be absorbed unchanged, as such, by the large intestine, and will be taken up in larger quantity the longer it remains.* Any state of irritation, as, for example, catarrh, hinders absorption or prevents it entirely. Chloride of sodium likewise interferes with absorption, but is taken up itself by the intestine, in spite of an irritated condition and impaired power of absorption. The albumen of the hen's egg is in an unfavorable form for absorption. When the white of an egg is introduced into the bowel unmingled with water only a very slight portion will be absorbed, and the same is true of it, even when beaten into a froth.

"Fat in emulsion is absorbed by the large intestine, and the amount actually taken up is proportional to the concentration of the emulsion and the length of time that it remains in contact with the absorbent surface.

"Starch, when hydrated, is absorbed by the large intestine, but whether directly as such or after being changed into sugar the experiment did not determine."

It was ascertained that $1\frac{1}{2}$ grammes of albumen in a $4\frac{1}{2}$ p. c. solution could be taken up in 24 hours. Since the portion of intestine experimented with was not over one-fourth the length the whole large intestine, it follows that the latter can absorb 6 grammes of soluble albumen in 24 hours. This quantity, however, is quiet

inadequate to maintain the nutrition of the body, since 120 grammes is the quantity necessary for an ordinary person. It is presumed that by using more concentrated solutions of albumen the amount absorbed might be increased.—*Virchow's Archiv.—Allg. Med. Cent.-Ztg.—Kansas City Med. Jour.*

The Automatic Man.—Under this appellation is given, in the *Gazette Hebdomadaire*, of July 17, a curious case, which has come under the observation of Dr. Mesnet, of the St. Antoine Hospital. A young man, during the late war, had a portion of the left parietal bone, about eight centimeters extent, carried away by a ball. Hemiplegia of the right side was the result, but this gradually disappeared. For some time past he has been subject to attacks, lasting from twenty-four to forty-eight hours, attended by very extraordinary phenomena. During these, he seems to act like an automaton, walking continually, incessantly moving his jaw (*machonnant*), knitting his brow, and appearing absolutely insensible to all that surrounds him. Not uttering a word, he walks straight forward, and when he meets with an obstacle, stops short, explores it with his hand, and tries to pass on one side of it. Surrounded by a circle of persons, he stops at each and endeavors to pass by the intervals formed by their joined hands, then turns back, comes in contact with the next person, and resumes his round. All this time he never manifests the slightest consciousness, just as if he were in a state of somnambulism. He is absolutely insensible to pain, so that pins may be thrust through the cheeks or into the fingers, or very powerful electric shocks may be administered without the slightest sensibility being manifested. What, however, is very remarkable is, that by bringing him into relation with certain objects, we are enabled to determine in him the entire series of acts which are correlated with the sensation thus aroused. Thus, if a pen be placed in his hand, he seeks for ink and paper, and writes a letter in a good hand, in which he speaks very sensibly about matters that concern him. If a leaf of cigarette paper is placed in his hand, he feels in his pocket for the tobacco, rolls up the cigarette very adroitly, and, having found his match-box, lights it. If the match be extinguished just as it reaches the cigarette, he finds another, and that several times, till he is allowed to light his cigarette. If, at the moment when the match is extinguished another already lighted is presented to him in its place, it is impossible to induce him to light his cigarette by the substituted match. He allows his moustache to become burned without offering any resistance, but will not employ the light thus presented to him.

Among the various experiments devised by Dr. Mesnet, there is one which is particularly curious. The young man is a singer at

concerts, by profession, and if gloves be placed in his hands, he immediately puts them on, and searches for paper. When a roll of this resembling music in form is given him, he places himself in the proper position and begins to sing. It would seem, in fact, that tactile sensation induced in him becomes the point of departure, and as if of escape of a series of acts correlated to their initial sensation—acts which he accomplishes automatically, without letting them deviate from their habitual and regular succession. Lastly, it is noted that, while in this singular condition, the patient steals all that comes within his grasp. If he touches any person, he feels for his watch-pocket, and invariably detaches the watch and puts it in his own pocket, from whence it may be removed without his making the slightest opposition. The crisis once over, he has no recollection whatever of what he has been doing, and becomes again perfectly reasonable.

The questions that such a case must give rise to for the reflection of the physician and physiologist, are striking. How, indeed, is such a fact to be characterized? And what idea is to be formed concerning the modifications of the functions of the nervous system which it exhibits? A no less interest must be felt by the medical legist, for evidently during these crises such an individual must be absolutely irresponsible. But how, under similar circumstances, are the facts to be ascertained?

What precedes is a mere sketch of some of the features of this curious case. Dr. Mesnet, armed with all the resources derived from a consummate experience in the study of mental diseases, has had it for some time under consideration, and will immedialely publish a memoir on the subject.—*Medical Times and Gazete*, July 25, 1874.—*Boston Medical and Surgical Journal.*

Action of Nitrite of Amyl in Restoring Temporarily a Moribund Patient.—I H., aged thirty-two years, laborer, entered the service of Dr. E. G. Janeway, at Bellevue Hospital, on May 27, 1874. The history obtained was to the effect that, during the summer of 1872 he first noticed his eyelids to be puffy, and his feet swollen. He continued to work, however, until five months before admission, when increasing debility, complicated with dyspnœa, palpitation, and loss of appetite, developed. When admitted, the patient was anæmic, very pale, and stated that his urine had been suppressed forty-eight hours. His feet and legs were very œdematous, and the rest of his body to a slighter extent. There was increased area of cardiac dullness, with a double murmur oves heart anteriorly, with the qualities of a friction sound of cardiac rhythm. There were also evidences of slight œdema of the lungs. The catheter removed only a few drops of urine from the bladder. Dry

cups were applied over the lungs and kidneys, and half an ounce of infusion of digitalis, with half a drachm of acetate of potassa, given every four hours. The next morning the dyspnœa was improved, and about four ounces of highly albumninous urine passed. About noon, Dr. Janeway saw the patient for the first time. He was then unconscious. Pupils dilated. No response on touching the conjunctiva. Complete loss of pulse at the wrist, and breathing of a spasmodic character, such as occurs a few minutes before death. Some nitrite of amyl was obtained, and inhalations of five drops, cautiously increased to twenty-five drops, commenced. After the use of twenty drops, the pupils began to contract, and winking resulted from touching the conjunctiva. The pulse now began to be felt at the wrist. With the use of the last five drops he returned to consciousness, and the pulse at the wrist became full. He was now able to speak, and asked how long he had been faint, and whether or not he would pull through. The inhalations were now suspended, and half an ounce of brandy administered. A man was stationed at the bedside to notify the house-physician of the least approach of dangerous symptoms. In about fifteen minutes another attack occurred, and by the time the physician approached him he was dead.

There can be no doubt that in this case the amyl produced the temporary restoration from all but death, and the subsequent death in so short a time showed the gravity of the case.

The temporary restoration might be at times of great value, and, in a case where the lesions were not serious, might be prolonged into cure and permanent recovery.

Dr. Janeway has not read of any case in which such a near approach of death was warded off, and is of the opinion that, as a rule, it would not be judicious to give such large doses; but, from the fact that a certain amount remained on the towel, it is difficult to say how much in reality the patient inhaled. He does not believe that the nitrite would prove equally serviceable in cerebral hyperæmia producing unconsciousness, the case under observation being one of cerebral anæmia, with failure of the heart's action from pericarditis.

Autopsy.—Lungs œdamatous, with slight hydrothorax. Heart normal in size. Pericardium coated with fibrinous exudation of considerable amount. The sac contained a small quantity of serum. A microscopical examination of the tissue of the heart showed evidences of fatty degeneration in the portions beneath the pericardium. Liver, fatty. Kidneys of the large, white variety. Evidences of fatty degeneration, with increase of connective tissue. Cortical part of the kidneys anæmic. On one side there was a hydrocele.—*New York Med. Jour.*, July, 1874.—*Med News.*

Influence of Chloroform in Labor upon the Fœtus.—Dr. Zweifel, of the Obstetric Clinics in Strasbourg, has recently made some investigations that would seem to imply that the anæsthetic administered to women in labor has more effect upon the fœtus in utero than is perhaps generally admitted. Dubois has made the statement that anæsthesia of the mother causes increased rapidity of the fœtal heart-beats. The writer had often observed an appearance of icterus upon newly born children after the use of chloroform, but could not with certainty attribute it to the latter. His attention was at first seriously arrested by perceiving in the breath of an infant, born a few hours before, a distinct odor of chloroform. The child had been extracted while the mother was under the influence of the anæsthetic, but since the delivery had lain in a room by itself, where no chloroform had been used. Shortly after this, in order to determine positively whether the anæsthetic was conveyed to the fœtus through the maternal circulation, he instituted the following test: A fresh placenta that had just been expelled by a woman to whom chloroform had been administered for only about fifteen minutes, and more than an hour previously, was placed in a close-fitting vessel, having first been cleansed of all adhering clots. The following day, when the vessel was opened, a decided odor of chloroform was perceived, and further examination proved conclusively the presence of the drug. By still another test (the examination of the child's urine), the writer was able to establish the fact of the influence of the anæsthetic upon the fœtus. In conclusion, the writer observes that, since the use of narcotics in general are contraindicated in infants, it is an important question for obstetricians to decide, to just what degree anæsthesia may be carried in women in labor with impunity to the fœtus.—*Berliner Klinische Wochenscrift—New Yorh Medical Record.*

Treatment of Chloroform Asphyxiation.—Dr. Campbell, of Paris, recommends, in a late number of the *Journal de Therapeutique*, to place persons threatened with death from inhalations of chloroform head downwards and feet upwards for between ten and fifteen minutes. He considers that death arises from syncope due to cerebral congestion. The usual efforts at mechanical breathing, excitement of respiratory nerves, the drawing out of the tongue, insufflation into the lungs, etc., may be had recourse to concurrently. Dr. Campbell mentions only one case where this method succeeded. It was suggested by Nelaton during an operation performed at Paris by Marion Sims. It would appear that the late Professor Nelaton was the first surgeon who introduced this practice. The author also thinks that the inverted position tends to drive from the lungs and trachea pent-up vapors of chloroform, which were increasing the asphyxia.—*Dental Cosmos*, August, 1874.

Atropia in Phthisical Sweating.—Dr. James W. Williamson reports, in the *Lancet* of July 25th, the results of Dr. A. H. Hassall's experience with atropia in the night-sweating of phthisis. In sixteen cases in which the remedy was tried, he found the perspiration either wholly arrested or materially diminished; but in only one-fourth of the number was the effect permanent. The dose given was one-eightieth of a grain, in the form of pill, with extract of gentian. The quantity was increased, as it seemed necessary, to to one sixieth or one-fittieth of a grain. The watery solution of atropia was found liable to spoil, and inferior in its effects to the solid dose as administered. In some patients, the sensibility to the atropia rendered its use inadmissable; but in a large class of cases it is believed that it will answer a good purpose after other remedies have failed. The cases above mentioned were treated in the Royal National Hospital for Consumption, Ventnor.—*N. Y. Med. Jour.*

REMARKS, GLEANINGS AND EXTRACTS

BY LOCAL EDITORS.

Treatment of Obstinate Constipation.—Dr. Macario, of Nice, in a communication to the *Lyon Medicale*, observes that in treating constipation most practitioners confine themselves to enemata, laxatives, or more or less irritating purgatives, which in point of fact rather aggravate than cure the affection. He therefore wishes to make known what he says may be truly termed an "heroic" remedy, which he has employed during twelve years with such constant success that he cannot but regard it as infallible.

Constipation, as every one knows, may be produced either by intestinal excitement with deficiency of secretion (nervous constipation), or in consequence of deficient contraction of the muscular coat of the intestine. Here it is produced by atony or intestinal indolence, which bad anti-hygienic habits have induced and keep up. The prolonged contact of the fæces with the rectum blunts the sensibility of the mucous and muscular tissues, and the synergical contraction of the upper portions of the large intestine either does not take place or does so in an insufficient degree, constipation being the result. In *nervous* constipation the following pill should be given: Pure sulphate of iron ten centigrammes, socotrine aloes five centigrammes, atropine from one-third to one-half of a milligramme. In the *atonic* form, for atropine one centigramme of powder of nux vomica may be substituted. By the aid of these

pills regular stools may be procured, even in the subjects of obstinate constipation due to *ramollissement* of the brain and chronic myelitis with paraplegia. Dr. Macario gives from one to three pills immediately after dinner, the object being to produce one easy, natural, non-diarrhœic evacuation. If more than this is effected, the dose is to be diminished, one or two pills sufficing in most cases. The use of these "antistyptic" pills ought not to be continued indefinitely, a longer interval being allowed to elapse between their administration in proportion as the constipation diminishes, it being of importance to allow the organs to resume their spontaneous action without any auxillary. If the constipation returns, the pills can be again had recourse to.

Iced Clysters in Dysentery.—Dr. Wenzel, having had occasion to treat a great number of cases of dysentery, has found the best remedy to consist in the injection of ice-water into the rectum. It is an inoffensive, economical treatment, and gives extremely satisfactory results. The first case the doctor treated in this manner was one of severe dysentery. There were intense fever, abdominal pains, excruciating tenesmus, and profuse sanguineous evacuations. To check the hemorrhage, injections of ice-water were ordered every two hours, which not only caused the sanguineous evacuations to cease, but also removed the tenesmus, enteric pains and fever. The beneficial effect of these injections was so evident that the patient urgently demanded their repetition whenever the pains threatened to reappear. Dr. Wenzel now considers this treatment more satisfactory than any other in acute cases, although in chronic cases it can only be expected to afford a temporary and palliative effect.—*L'Independente*, April, 1874—*New York Medical Journal.*

Treatment of Varix by Injections of Hydrate of Chloral.—In view of the fact that hydrate of chloral has the property of coagulating blood, Prof. Porta (*Revista de Med. e Chir.*) has instituted some experiments in the treatment of varicose veins, and arrived at the conclusion that the above remedy is the best for the relief of this condition. In proof of his assertion, he relates the histories of sixteen cases of varices of the legs, on which he has successfully operated. The quantity of chloral employed varies from one-third gramme to one gramme, and is not injected at once, but with intermissions; the coagulum forms immediately, and the patient must remain in bed for several days to guard against the occurrence of phlebitis; after this period the coagulum is gradually absorbed, and the veins atrophy, or, if remaining permeable, at least cease to be varicose. The accidents which are liable to occur under this plan of treatment are very rare, and not of a grave character: 1. Softening of the thrombus, usually transitory, and not retarding

the final result. 2. Phlebitis, which is slight, and ceases in a few days. 3. Limited abscess. 4. A circumscribed eschar of gangrene of the skin, occurring in aged subjects. It is probable, observes the author, that this method of treating varices may be of use in regions of the body other than the limbs. He has already had one successful case of varicocele, and proposes to extend the treatment to subcutaneous nævi, arterio-venous aneurisms, and hemorrhoids.—*Revue de Thérap.*, 1874.

Bismuth to Prevent Chaffing.—Dr. Q. C. Smith (*Pacific Medical Journal*) says that a powder composed of oxide of zinc and starch, to prevent chaffing in infants, is no doubt a good remedy. But I beg to mention another, which I believe to be better, and one that long experience has taught me to value very highly. It is this: Take subnitrate of bismuth, in fine powder, and put in a thin flannel bag, and use as the old nurses use the old style "starch-bag," in dusting over the chafed parts, or those parts that are likely to or have already become sore, from any cause whatever. Should the parts be too tender for the use of the powder in this way, it should be sprinkled on plentifully. The good effect will, in many instances, manifest itself very quickly after the application. I have found bismuth an excellent external remedy for raw, blistered surfaces, and many other more or less superficial ulcerated surfaces.

On the Use of Post-Partum Binders.—At a recent meeting of the Obstetrical Society of Edinburgh, a somewnat remarkable paper was read by Dr. Cairns, opposing the use of binders after parturition, and, what is the strangest of all, his extraordinary views appear to have met with very general approbation from the members present.

The disadvantages in the use of binders enumerated by Dr. Cairns, are as follows:

1. That their application entails unnecessary trouble upon the *accoucheur*. Dr. Cairns confesses that when he first entered upon practice, it cost him more trouble to apply the binders, in many cases, than to deliver either the child or placenta.

2. That their application unnecessarily exposes the patient, which, if several persons are present, may thereby shock her moral sensibilities; it may, moreover expose her to currents of cold air, which, on her part, may lead to disastrous results.

3. Post-partum binders impede the circulation, slipping far above the region of the uterus, thus interfering with the venous circulation, and thus tending to aggravate two diseases very common in pregnant women, viz.: varicose veins and hemorrhoids.

4. They are rarely of proper form. They should properly extend from the ensiform cartilage to a considerable way beyond the nates.

5. In cases of post-partum hemorrhage, the patient may die before the binders can be removed in order to apply the proper remedies for its arrestment.

Dr. Cairns, in conclusion, compares parturition in civilized and uncivilized conditions, and those two with the parturition of the lower animals. The latter, he affirms, owing to their pendent bellies, evidently require binders much more than women.—*Boston Med. and Surg. Jour.—Clinic.*

Treatment of Lumbago.—Dr. G. V. Poore reports the case of a man, æt 35, who had the following history:

He had been accustomed to lathe-work, moving the treadle with his right foot, but had been unable to work for six years on account of a pain at first affecting the backs of the thighs and hips, but afterwards settling in the lower dorsal and lumbar regions. It was of a plunging, shooting character, much aggravated by the slightest movement, or even by the most gentle touch; he was bent almost double, and walked with the greatest difficulty. The intercostal muscles on both sides were affected, but there was no sign of any disease of the vertebræ or of the cord, and no particularly tender points were detected along the spinal column. He had been subjected to a great variety of treatments, but without any permanent relief having been afforded him.

The positive pole of a zinc-carbon battery was placed at the upper part of the spinal column in the median line, and the whole back, including the intercostal muscles, was sponged with the negative pole. During the application the patient was made to exercise his muscles rhythmically by bending, extending, and rotating the spine, and by frequent inspiration. The effects of this treatment were apparent from the first: the pain was greatly and immediately diminished, if not abolished, and in a short time all the extreme symptoms disappeared.

The important point was apparently the rhythmical exercise of the muscles, which improved their nutrition; but without the anodyne application of the galvanism such exercise would have been impossible.

Galvanism in Post-Partum Hemorrhage.—The following case may be considered of interest as furnishing an instance of the efficiency of a mode of treatment for the great opprobrium of obstetric art, which, if not new and little known, is at any rate far from being so widely employed as its numerous advantages would appear to indicate it should be.

The patient was in an extremely feeble state of health, and subject to epileptiform seizures. Convulsions came on during the first

stage of labor, and could only be checked by keeping her under the influence of chloroform for some time. Failure of uterine action occurred before the os uteri was fully dilated; but, as it was sufficiently dilatable, forceps (Beattie's) were introduced, and delivery was accomplished. Still, the uterus did not contract, and, after the placenta was removed, hemorrhage could only be restrained by keeping the hand within the uterus. Grasping and kneading the uterus, cold effusion externally, and injections of cold water per vaginam, produced no effect. A dilute solution of perchloride of iron was freely injected into the uterus, but proved ineffectual. The employment of galvanism was then suggested as a *dernier ressort*, and one of Stohrer's portable coil machines was procured. An interrupted current of considerable intensity was directed through the uterus, one pole of the battery being applied to the abdominal walls immediately over the fundus, by means of a curved plate of copper, and the other placed in the cervix. Almost immediately firm contraction took place; and when the current was discontinued after a short time, the uterus remained securely contracted, and no further hemorrhage took place. The patient made a good recovery.—*British Medical Journal*, August 9.

Sedative Power of the Bromide of potassium.—A very striking example of this power has been published by Dr. Leriche, in *L'Union Méd.*, of July 19th, last. A man of thirty-five years had been suffering for some time from stricture of the spinchter ani. All kinds of applications were used, as opium, camphor, belladonna, baths, plugs, dilatation with the prepared sponge, etc., but to no purpose. The pain on evacuation was excruciating, and the finger could not be made to pass the contracted spincter. Dr. Leriche was then consulted and advised the cessation of all local applications. Rest and a light vegetable diet were prescribed, and thereupon the patient experienced considerable relief. As the latter expressed much fear at the proposal of an operation, thirty grains of bromide of potassium were given per diem. This dose was gradually increased to eighty. In a month all the disagreeable symptoms had disappeared, and the exercise of the functions of the rectum occasioned no pain whatsoever. It is plain that the case was one of spasmodic contraction. It would be worth while in strangulated hernia to try large doses of bromide of potassium.—*Lancet*

Lead in Subnitrate of Bismuth.—A sample of subnitrate of bismuth from one of our most reliable manufacturing houses was recently found to be contaminated with nitrate of lead to such an extent that the impurity was detected at once by the sense of taste.

Editorial and Miscellaneous.

☞ This issue of the RECORD has been delayed a few days, owing to the press of business occasioned by the State Fair, the grandest success in that line known to the history of Georgia.

To Our Subscribers.--Our thanks are especially due those of our subscribers who have remitted their dues since the issue of the September number, and thus aided us in carrying out our contract with our publishers. Those who have not done us this favor, will please do so immediately after receiving this number, and thereby relieve us during the "hard times!" Don't fail, friends.

☞ Write your Names, Post Office, County and State *plainly*. Be sure to say what Post Office you wish the RECORD sent, and always date your letters. We receive many well written letters, but doubt even the authors being able to decipher their signatures.

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☞ Send Money by Check, Postal Order or by Registered Letters. We are willing to endorse for the honesty of our subscribers, but cannot be responsible for the irregularity of the mails.

Political Honors to Physicians.

It is with very great pleasure we see so many good and able medical gentlemen of the State sent, by appreciative constituents, to the General Assembly of Georgia.

Dr. W. O. Daniel, a noble brother and an honest, warm-hearted man, takes a seat in the Senate. The interests of the people and profession are safe in the hands of our esteemed friend, and we doubt not he will make a "splendid" record as a Senator.

Dr. J. G. Thomas, of Savannah, goes to the Lower House. Dr. Thomas is a professor in the Savannah Medical College; and,

being a gentleman of culture and talent, fills every place thrust upon him with ability. We congratulate our friend upon his promotion. The Georgia Medical Society will find an able and ear-earnest advocate in Dr. Thomas.

Dr. H. H. Carleton, of Athens, the political war-horse of the profession, has been returned to his old place in the House. He does good service whenever he works.

Dr. T. H. Baker, of Bartow—our old Bartow—heads his ticket in the "empire" county, and for the second time takes his place in the House. The Doctor has made a fine reputation as a legislator, and will wield a powerful influence for the interests of the profession.

We congratulate these brethren and the profession no less upon their elevation to position. That they will do honor to both, we do not question. W. T. G.

To the Medical Profession of Georgia.

The Georgia Medical Society, believing that the law giving grocery-men and boarding-house keepers the right to garnishee wages and salaries of employees to be a good one, and of great benefit to the employee, enabling the former to do a credit-business, and the latter to procure provisions for his family. Believing further, that in case of sickness it is just as necessery that he should have prompt medical attendance, which he cannot get unless the physician has some guarantee to pay for his services, the Society has determined to appeal to the Medical Profession of the State, urging them to use their influence with their representatives to the legislature to procure the passage of a law extending to physicians the same right of garnishment that grocery-men and boarding-house keepers now have.

The law referred to is to be found in the Georgia laws for 1872, No. 44-0, No. 91.

AN ACT TO AMEND THE GARNISHMENT LAWS OF THIS STATE.

17. SECTION 1. Be it enacted by the general assembly of the State of Georgia, and it is hereby enacted by the authority of the same.

"That, from and after the passage of this act, the wages of no person in the employment of another shall be exempt from the process of garnishment, when the consideration of the debt is pro-

visions for the use of the employee or his family, or when the consideration of said debt is for board of himself and family.

THEO. STARBUCK, M.D.,
W. H. ELLIOTT, M.D.,
J. C. LEHARDY, M.D.
Committee.

We take pleasure in laying the above circular before the profession of Georgia, and trust the fraternity will *instruct* their friends of the general assembly to lend a helping hand in a matter so important to the profession of the State. W. T. G.

The Physiology of Man.— Vol. V.

The fifth and last volume of Dr. Flint's great and exhaustive work on Physiology completes the labors of eleven years devoted to the subject, and places before the profession the fullest and latest views of the most eminent physiologists of the day on the important branches included in the title—the Special Senses and Generation. The distinguishing feature of this work is that nothing is taken for granted. The author has thoroughly sifted and weighed the opinions of his contemporaries, and has held fast only those things which he has found to bear the test of actual experiment and personal observation.

The first chapter treats of the sense of touch, muscular sense and sensibility, the tactile corpuscles, and the venereal sense.

The second chapter takes up the olfactory nerves, their anatomy and physiology, and their relations to the sense of smelliug and tasting.

Chapters III., IV., V. and VI., are devoted to the optic nerves, the anatomy of the eye, refraction, vision, the function and mechanism of the iris, the muscles of the eyeball and eyelids, the lachrymal apparatus, etc.

Chapters VII., VIII. and IX., deal with the auditory nerves and the sense of hearing in all its relations, including the physics of sound, the appreciation of harmony, discord, etc. This necessarily requires a full consideration of the anatomy and physiology of the various parts of the auditory apparatus.

Chapter IX. is devoted to gestation and the nerves of taste, the tongue and its functions, facial paralysis, etc.

In chapter X. the author opens the subject of generation with a

general view of the female sexual organs, the ovaries, Fallopian tubes, uterus, and the erectile tissue concerned.

Chapter XII. treats of the ovum and ovulatian, puberty and menstruation, changes in the pregnant uterus, the corpus luteum, etc.

Chapter XIII. gives a full account of the male organs of generation, the testicles and their secretion, the glands of the urethra, and the changes in these organs from infancy to old age.

Chapter XIV. is on fecundation, the part of the male and female in the reproductive process, the entrance and destination of spermatozoids, the influence of the maternal mind on offspring, etc.

Chapter XV. treats of the segmentation of the vitellus and formation of the membranes and placenta; Chapter XVI. of the development of the embryon, and the osseous, muscular, cutaneous, and nervous systems; Chapter XVII. of the development of the alimentary system, the respirary system and the face; Chapter XVIII. of the development of the genito-urinary organs in both sexes, and of the circulatory system.

The work closes (Chapter XIX.) with an admirable view of the subject of fœtal life, a consideaation of development after birth, maturity, the decay of age, death, and the resolution of the body into its original elements.

It is not too much to say of Dr. Flint's complete work that it stands alone as a comprehensive treatise on human physiology, and that its publication marks an epoch in medical literature.

ADVERTISING DEPARTMENT.

We shall, during the coming year, devote only a few pages to our advertising department.

Only first-class houses will be solicited, and we trust, therefore, that our readers will give their patronage and influence to those who use our journal as a medium for introducing their business to the public. We hope that this Department will be examined at each monthly issue, as we have promise of cards from several worthy establishments, and shall, from time to time, introduce new remedies and reliable houses.

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THE PRELIMINARY AUTUMNAL TERM for 1874-1875 will commence on Wednesday, Septemb 16, 1874, and continue until the opening of the Regular Session. During this term, instruction, consisting of didactic lectures on special subjects and daily clinical lectures, will be given, as heretofore, by the entire Faculty. Students designing to attend the Regular Session are strongly recommended to attend the Preliminary Term, but attendance during the latter is not required. *During the Preliminary Term, clinical and didactic lectures will be given in precisely the same number and order as in the Regular Session.*

THE REGULAR SESSION will commence on Wednesday, September 30, 1874, and end about the 1st of March, 1875.

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The Summer Session will consist chiefly of Recitations from Text-books. This term continues from the middle of March to the midlle of June. During this Session there will be daily recitations in all the departments, held by a corps of examiners appointed by the regular Faculty. Regular clinics will also be held.

FEES FOR THE REGULAR SESSION.

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July-8m